DOCUMENT RESUME

ED 351 032 IR 054 230

AUTHOR Cornish, Graham P.
TITLE The Role of National Libraries in the New Information Environment.
INSTITUTION United Nations Educational, Scientific and Cultural Organization, Paris (France). General Information Programme.
REPORT NO PGI-91/WS/4
PUB DATE Mar 91
NOTE 102p.
AVAILABLE FROM Division of the General Information Programme, Unesco, 7 Place de Fontenoy, 75700 Paris, France.
PUB TYPE Viewpoints (Opinion/Position Papers, Essays, etc.) (120) -- Reports - Research/Technical (143)

EDRS PRICE MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS Archives; Bibliographic Records; *Change Strategies; *Computer Networks; Electronic Publishing; Foreign Countries; *Information Technology; Interlibrary Loans; *International Programs; Library Automation; Library Collection Development; Library Development; *Library Role; Library Surveys; *National Libraries; Online Catalogs; Organizational Change; Preservation; Questionnaires; Reference Services; Union Catalogs

ABSTRACT

This document examines the impact of new information technologies on the various roles of national libraries. Seventy-two national libraries responded to a questionnaire designed to assist in determining how such institutions worldwide are responding to recent technological innovations. The first of six chapters identifies three basic characteristics most national libraries have in common: they are funded mostly by public funds; they are open to the public; and they act as the major archive of printed material produced within the country or region concerned. The second chapter, which is based on the survey and a literature review, deals with acquisitions, record-creation, and policy. It summarizes national library activities in 15 functional areas, ranging from collection management to services for the handicapped. Included is information about nonprint collections and catalog automation. The third chapter provides information about networking and cooperation. It covers links with other library catalogs, union catalogs, links with networks, planned links, networking and acquisition, and networking and interlending. The fourth chapter covers changes in publishing patterns and their impact, including audio and video production, CD-ROM, electronic publishing (defined as the production and dissemination of text through online systems), desktop publishing, and broadcasting. The basic characteristics and functions of a national library are reexamined in the light of technological developments and assessments are made of where changes will inevitably occur, where they already have occurred, and where they may occur depending on the management, goals, and dynamism of the national library. Recommendations for ways in which national libraries might react to these changes conclude this report. A list of acronyms and abbreviations is provided. (KRN)

ED351032

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☐ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

PGI-91/WS/4

The role of national libraries in the new information environment

BEST COPY AVAILABLE

"PERMISSION TO REPRODUCE THIS MATERIAL IN **OTHER THAN PAPER COPY** HAS BEEN GRANTED BY

C. Coudert Schklowski

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

General Information Programme and UNISIST

United Nations Educational,
Scientific and Cultural Organization

Paris, 1991

Original : English

PGI/91/WS/4

Paris, March 1991

THE ROLE OF NATIONAL LIBRARIES IN THE NEW INFORMATION ENVIRONMENT

prepared by

Graham P. Cornish

General Information Programme and UNISIST

United Nations Educational,
Scientific and Cultural Organization

This document is the photographic reproduction of the author's text

Recommended catalogue entry :

Cornish, Graham P.
The Role of National Libraries in the New Information Environment / prepared by Graham P. Cornish [for the] General Information Programme and UNISIST. - Paris : Unesco, 1991. - 96 p. ; 30 cm. - **(PGI-91/WS/4)**

I - The Role of National Libraries in the New Information Environment
II - UNESCO. General Information Programme and UNISIST

© UNESCO , 1991

PREFACE

This document has been prepared by Graham P Cornish under contract with the International Federation of Library Associations and Institutions (IFLA). Its publication follows two previous UNESCO documents on the subject of national libraries: Guy Sylvestre's Guidelines for National Libraries (PGI-87/WS/17) and Maurice B Line's National Library and Information Needs: alternative means of fulfilment with special reference to the role of national libraries (PGI-89/WS/19).

The present document examines how the various new information related technologies have impacted upon the several roles of the national library. Seventy-two National Libraries responded to a questionnaire designed by the author to assist him in determining how such institutions worldwide are responding to the recent technological innovations. Suggestions are made as to how national libraries should adapt to the rapidly changing information environment in order to keep abreast of and profit maximally from these new developments.

The designations employed and the presentation of the material throughout this document do not imply the expression of any opinion whatsoever on the part of UNESCO.

Readers are invited to send comments, suggestions or requests for additional copies to the Division of the General Information Programme, UNESCO, 7 Place de Fontenoy, 75700 Paris, France.

CONTENTS

Chapter		Page
1.	The Role of the National Library	1
2.	The Current Situation - Acquisition, Record-Creation and Policy	15
3.	The Current Situation - Networking and Cooperation	43
4.	Changes in Publishing Patterns	55
5.	Changes and Challenges for National Libraries	61
6.	How National Libraries Should Respond to the New Environment	83
	List of Acronyms and Abbreviations	96

CHAPTER ONE

THE ROLE OF THE NATIONAL LIBRARY

Introduction

National libraries, by definition, are limited in number. This is, perhaps, the only thing that can positively be said about them as a collective term. The national libraries of the world exhibit considerable diversity in their size, funding, structure and functions. National libraries perceive their roles very differently, ranging from being purely archival to acting as a commercial information broker. Within this diversity this report attempts to identify those functions which national libraries might reasonably be expected to exercise, those which they do actually have in common and those which could be exercised in the changing world of new information technology.

What is a national library?

It is tempting to turn the phrase "national library" into a self-defining term; in other words, "a national library is a library which calls itself the national library". As this report sets out to demonstrate, this is an inadequate understanding of the term. National libraries perform certain functions and exhibit certain characteristics. Many libraries actually perform these functions and exhibit these characteristics but do not claim to be, and are not, national libraries. On the other hand, many national libraries, whilst exhibiting some of the outward characteristics of the genus, perform very few of the functions normally associated with it. In addition to this confusion between status and function, there are considerable differences when the word "national" is used. Particularly in nations with a federal structure the concept of "nation" is differently viewed from without and within.

Basic characteristics

It must be acknowledged that national libraries have few basic characteristics in common. However, there seem to be few, if any, exceptions to the broad suppositions that they are:-

a) funded mostly from public funds;

b) open to the public;

c) act as the major archive of printed material produced within the country or region concerned.

Beyond these very basic statements, little else is certain.

Functions performed

Like the basic characteristics of national libraries, the functions which they perform are many and various. Few of these functions are performed by all national libraries although many national libraries perform many of the following functions:-

a) A central collection of materials produced within or about the country or region in which the national library is situated.

b) Maintain a comprehensive collection of foreign publications.

c) Provide national leadership in library and information affairs.

d) Be the hub of librarianship and the prime mover in library developments.

e) Provide a national information system to facilitate economic and social development at both national and personal levels.

f) Receive materials through legal deposit legislation.

g) Act as the national archive for non-published materials.

h) Create the national bibliographic record.

i) Make its collections nationally available.

j) Provide the focus for an international document supply system.

k) Act as a national resource for non-printed materials.

l) Provide a national referral service.

m) Undertake to conserve the national printed heritage.

n) Provide a central coordinating point for research in library and information science.

o) Provide a national service for the handicapped.

Displaying the basic characteristics

The three basic characteristics mentioned earlier are displayed by all national libraries although these characteristics may display different facets and emphases according to the culture of the country concerned.

There is no evidence of any library which claims to be a national library being funded other than by public funds. Not all national libraries receive their funds direct from government. Especially where a library fulfils a function other than that of national library, its funds may well be provided primarily for that other function. For example, a university library may primarily be funded as such although it also acts as de facto the national library. This is true in a number of developing countries as well as in developed library systems such as Finland and, until recently, Norway. Other national libraries function as, for example, the library of parliament as in the USA and Japan.

However, the increasing trend of asking national libraries to decrease their dependence on central government funds by revenue-earning activities must be noted. The introduction of a more commercially oriented philosophy can have considerable impact on the long-established roles and functions of national libraries. Such a change may be viewed as moving from the role of the benign academic institution to the aggressive commercial organisation, a change which can have long-term effects on the national library's relationships with publishers, information brokers and providers, and other libraries, both nationally and internationally.

The degree of public access which national libraries permit varies according to a number of factors. These include the physical constraints of the national library buildings; the alternative functions which the library performs and whether or not the national library is being used as a first or last resort. Constitutionally some national libraries are obliged to allow any member of the

public access to the collections, whilst others restrict access to those who can prove real academic or intellectual need to use the materials, often supported by an appropriate letter of recommendation from an accredited person or institution. In countries where there is a well-developed library network, access may be granted only to use those publications not available elsewhere. Thus consultation of popular novels, widely-published classics of the nation's literature and recreational material may not be allowed.

All national libraries attempt to be the archive of national printed materials although the method of achieving this varies considerably and the philosophy behind such attempts also varies with consequent differences in practice. Although many countries have legal deposit legislation, which requires publishers to deposit a given number of copies with the national library within a specified time, this legislation is by no means universal, neither is its enforcement taken as seriously in some countries as in others. The range of scope of legal deposit requirements is infinitely variable and legislation can be found which requires copies of almost everything printed (including ephemera) to be deposited to a wide range of exclusions. Non-print publications are also often excluded and may well be collected by a quite separate institution from the national library. Thus a number of countries have national libraries, national film archives and national sound archives (sometimes combining these last two). Furthermore, the acquisition of manuscript materials may not be the national library's function but one carried out by the national archives, a quite separate institution. Such fragmentation is not uncommon and leads to confuse even further the concept of a national library.

Carrying out the various functions

A number of possible functions have been identified as attributable to the role of national library. Few of these functions are all carried out by any one national library. Some functions are carried out by other agencies in different countries while others are not carried out at all or only partially so. It should also be noted that the funding of institutions which carry out some of these functions outside the national library may well be very different from the national library itself.

When examining the functions of a national library, differences in practice soon become apparent. No one national library performs all the possible functions attributable to a national library although one or two come near to this. Some hardly fulfil any of these functions at all.

a) A central collection of materials produced within or about the country or region in which the national library is situated.

This is the only function which is also a basic characteristic. Libraries which do not aim to do this are, by definition, not national libraries, although many libraries that do develop such collections would not claim to be national libraries. Even so, the collection of material about the country concerned is not universally practised and is explicitly carried out in only two or three countries.

b) Maintain a comprehensive collection of foreign publications.

This is increasingly becoming a utopian dream rather than a reality. No national library can now perform this function without some practical limitations, partly because of the explosion in literature and partly because of limited funds. In addition, the amount of literature produced worldwide means that much literature will be of limited regional or national interest and ought not to be collected widely outside the country of production. Increasingly libraries rely on good international document supply systems to supplement national holdings which may, in any case, be cooperatively developed according to subject or geographical origin rather than creating one single national resource centre.

c) Provide national leadership in library and information affairs.

Although national libraries in some countries do play a leading role in all library and information matters within their country (and internationally) this tends to be a function of the national library in more developed countries. In many developing countries and, indeed, in some European countries as well, the national library has a low profile and exerts little or no influence over national decisions on library matters. In some countries, indeed, the national library is seen as little more than another museum where the printed history of the country and its culture can be viewed and studied by a few scholars. Whilst some national libraries seek such an influential role, even if they cannot always achieve it, others make no attempt to fulfil this aspect of their potential functions.

d) Be the hub of librarianship and the prime mover in library developments.

Many national libraries, whilst excellent in themselves, often stand apart for political or cultural reasons from the mainstream of library life in their country. Some, indeed, are at the centre of library developments but many have no formal relationship with libraries in other sectors and are therefore cut off from exerting any real influence. For the same reason it is often difficult for them to take any kind of national lead which can be resented or ignored by those in other areas.

e) Provide a national information system to facilitate economic and social development at both national and personal levels.

To achieve this requires a pro-active role which many national libraries decline to take. This may be because of the perception of the role of a national library (as a repository to be used by those who want to but not taking steps to solicit use) or because of lack of staff or expertise. Some national libraries are constrained by the fact that offering such services would cost money which cannot be recouped by charging for such services.

f) Receive materials through legal deposit legislation.

This is a feature of a large number of national libraries although it must be noted that not all national libraries receive material on legal deposit, nor are all libraries that receive materials in this way national libraries. The legislation may have been introduced to ensure good regional collections without any obligation to the nation as such.

g) Act as the national archive for non-published materials.

Although the collection of manuscript material is an essential element of providing an archive of the national culture, this function is by no means universally carried out by national libraries. Many countries have a quite separate organisation, the national archives, to which unpublished material is sent. There is often no formal relationship between the national library and the national archives.

h) Create the national bibliographic record.

Although it would seem logical that the centre which received most published publications should produce the national bibliographic record, this is not universally true and depends on a range of economic and political factors. There are complications when legal deposit covers one material but not all. For example those countries where government publications or audiovisual materials are excluded from legal deposit will not be able to include them easily in the same national record as other published material. At the same time, if legal deposit is poorly observed or enforced, this may not be the best place to prepare the national record as it will, by definition, be deficient. In these cases some commercial organisation may well prove a better option.

i) Make its collections nationally available.

Although the majority of national libraries allow public access to collections this is only part of national availability. The geography or economics of a country may prevent users travelling to the national library to use the collections and the only alternative is an effective interlibrary loan service, based on the national library. This is frequently not a function which national libraries perform or perform to any real extent. National libraries are often unwilling to allow materials in the collections to leave the premises and, in some cases, are not allowed to do this by law. Others are anxious about the conflict between the reader present in the library and the absence of the material in some remote location. Some national libraries maintain a two-copy collection - one for reference and preservation and one for loan. Nevertheless many national libraries leave this function to networks of public or academic libraries for whom it is often a low priority.

j) Provide the focus for an international document supply system.

The IFLA publication International interlending: principles and guidelines for procedure envisages a centre in each country which will act as the focus for international interlending. The assumption has been that this would be the national library but in practice this is often not the case. Where there is no national interlending system then, clearly, the national library cannot act as a centre but even in these circumstances it would be possible for the national library to act alone to provide loans and photocopies

abroad in accordance with the basic tenets of the UAP Programme. However, it is often found that the national library is not the focus for international interlending at all but that this function is fulfilled by some other library of institution such as a national documentation centre. Quite often, however, the national system is a decentralised one and the national library has no role to play in it with the effect that those wishing to apply to that country from outside have no knowledge of how to go about it as there is no one centre to which they can apply.

k) Act as a national resource for non-printed materials.

This is a function which many national libraries do not fulfil. Although some have legislative responsibilities for collection of non-print materials most do not in fact collect this material and it is more often the responsibility of a separate film or sound archive. There is almost no provision for the collection of either multimedia publications or computer software anywhere. Very few national libraries collect broadcast material as such and Norway is unusual in having recently introduced legal deposit for such materials which will make it obligatory for the national library to collect and retain copies of broadcast material.

l) Provide a national referral service.

In terms of union catalogues, by which requestors are referred to other libraries, this is a function often performed by national libraries even those which do not always participate in interlending services. Union catalogues serve other purposes including referring readers to other libraries to continue their studies and this is often the prime function of a union catalogue in a national library.

Referral services in the wide sense of suggesting centres of excellence, whether for printed materials or for information of various kinds, is a far less common function and performed by very few national libraries.

m) Undertake to conserve the national printed heritage.

Conservation is a major international problem. Most national libraries see this as part of their responsibility and some have devoted large sums of money to the research and development of conservation techniques. Many other find this too expensive an exercise to carry out properly and tend to

concentrate their efforts on a few items of apparent national significance, usually historical. The editing and weeding of stock is not normally seen as a function of the national library; rather an attempt should be made to conserve everything in the collection. Necessity dictates a ranking order which will eventually lead to the loss of many materials whose value in future generations can only be guessed.

n) Provide a central coordinating point for research in library and information science.

Recent studies have shown that relatively few national libraries have an active R&D programme. Those who do vary as to whether the research is for libraries nationally or for the benefit of the national library only. Some national libraries do not carry out research themselves but do fund others to carry it out instead. In some cultures it is required that the national library not only develop a research programme but also implement it on behalf of all libraries in the country.

o) Provide a national service for the handicapped.

The provision of services to the handicapped is a function carried out by very few national libraries as such. However, in a number of countries where there is no provision for the handicapped within the national library there is often a quite separate national library, especially for the blind. It is unusual to find much cooperation between the national library and the national library or its equivalent for the handicapped. With one or two notable exceptions they are separately funded, where they both exist, through different agencies.

Technological developments

To talk of "new" technology is both dangerous and misleading and the term is avoided in this paper. The impact of technological development on library services generally is far too well documented to merit more than a passing comment. Such developments offer two apparently opposing progressions to libraries in general: either they enhance library provision and activity by allowing much more varied and complex exploitation of library records, resources and materials by carrying out tasks which the human staff could not; or they place severe limitations on library activity by making the librarian's traditional role redundant, especially as searcher and information broker. They

also offer the owners of the rights in published materials much more scope for limiting the access to and use of the materials except under control. These two trends, which are not necessarily in opposition to each other, are having and will continue to have, a profound effect upon the role, functions and services of national libraries in the coming decades.

Significant technologies

Clearly technological developments will have varying impacts on libraries of all kinds and this is true also of national libraries. Again some technological developments will have more impact on some kinds of libraries than on others and these same developments will have differing effects on the different roles and functions of the national library as described earlier. The impact of such developments on these roles and functions will be studied in depth later in the report: here it is sufficient to identify some of the technologies which are significant and signal those areas where changes and difficulties for national libraries may arise.

CD-ROM

CD-ROM has been seen as one of the great developments in library automation. Its storage and manipulative capacities are certainly impressive and it may be presumed that, as the technology develops, the size of the data stored and the ability to manipulate it will both increase. Its capabilities for storing large quantities of bibliographic data are of considerable significance for union catalogues, reference works and journals. The ability to network CD-ROM is technically already available which considerably enhances the power of any one workstation by having access to a wider range of materials, than are actually held in that library. The economics of CD-ROM make it a more attractive medium than online searching. Although the capacity of each disc is limited, this can already be partially overcome by the use of jukebox mechanisms. Control by the publisher/producer of the use is at present more limited than through an online database but this may change in the near future.

Online databases

Online has been with us for so long it is hardly right to talk of its impact on libraries any more as a new phenomenon. Nevertheless, online is still quite novel in many national libraries and in some countries, so that its impact in the developing world, in particular, needs to be studied with care. It is a medium

already used by national libraries in many countries for searching external databases, creating and searching internal records and data, and for networking to other libraries for a whole range of services including catalogue creation, collection development, interlibrary loan, referral services, verification and subject searches. With the development of OSI (Open Systems Interconnect) the range of services and sources available and ease of access to them will continue to grow rapidly.

Telefacsimile (fax)

Fax has demonstrated one of the most rapid growth curves of any technology, not only in libraries but throughout the communications world. It is widely used in many libraries in both developed and developing countries. Its ability to transmit quite large quantities of text at a reasonable speed (especially using Group IV) with increasing clarity and reliability makes it an ideal tool for document delivery, administrative matters and urgent messages requiring reliable and confirmed delivery.

With the advent of Group IV and functions such as store-and-forward, multiple message transmission and direct copying/transmission from published documents, this technology is likely to continue to grow if not in numbers of machines certainly in number of transmissions. The technology does pose a number of problems for preservation and copyright law but its advantage over telex is so strong that the latter technique for sending messages is likely to disappear in the next decade altogether.

Electronic mail

Technological development makes the boundaries between telex, online messaging, teletext and electronic mail very difficult to define as any of these methods can eventually be termed "electronic mail". As a general term electronic mail is being used increasingly in all kinds of libraries. Electronic mail enables messages to be sent quickly and reliably regardless of time zone or distance and can be used directly between communications without the necessity of intermediaries such as typists or machine operators. Although useful for transmitting messages it poses legal problems when used for the transmission of published documents.

Satellite transmission

The use of satellite transmission for documents is already a reality but its impact on libraries as such is less direct than might be expected as the satellite performs the same type of function as electronic mail and so the changes in library use and practice are likely to be minimal. Use of satellite for broadcasts is, of course, routine but does not affect libraries and archives, even those which collect this material.

Teletext

The use of teletext/videotext in many countries is growing although experience shows that it is less revolutionary than had been hoped. Nevertheless it is used to make generally available a great deal of information to the public, including in some countries bibliographic information. It is easy to use and access and its impact on some aspects of library services will be considerable.

Optical Character Recognition/scanning

This technique is not new but has only recently reached a state of sufficient reliability to be used widely. It enables text to be scanned, digitised, stored and printed without major human resources. Its use both for preservation purposes and the production of catalogues and manipulating published text is certain to grow although it poses, like most electronic formats, considerable copyright problems.

Electronic publishing

Electronic publishing is a generic term which covers several different activities, some of which are more likely to have a radical impact on national libraries than others. The term is used to include CD-ROM, electronic production of paper text, production of text in electronic form only and desktop publishing. Because of these differences each method will be examined separately.

CD-ROM

This has already been dealt with as a separate topic but it may be said that CD-ROM poses a combination of problems derived from both conventional paper publishing and electronic publishing. As each disc is (at present) a finite and stable "document" it can be evaluated and a record created of its content (as

for paper) but as an electronic medium it is capable of manipulation by the use, including downloading, interactive searching (CDI) and subsequent creation of new works from its content. It is also capable of having restrictions imposed on its use which may well be able to be monitored.

Paper text electronically prepared

This is a very common method of preparing paper publications. It enables text to be manipulated and changed right up to the last minute before printing and also enables publishers to produce revised editions and correct errors for subsequent print runs without major expense. It also enables publishers to dispense with paper archive copies or even paper copies in multiples so that on-demand publishing can be achieved in certain circumstances where market forces dictate this is the best method.

Text prepared in electronic form only

There are still relatively few documents which are made available in electronic form only. However, with the increasing costs of paper production and distribution and growing use of online facilities some publishers are now considering making some high cost technical literature available in electronic form only. This would dispense with conventional publishing methods and distribution altogether. It will enable users to have paper copies as and when required although all use of the text will be monitored and controlled by contractual arrangements. This method of publication also opens the way to online editing and updating and also cooperative production of documents without the need for contributors to meet and consult.

Desktop publishing

With the advent of the PC the possibility of personal publishing using desktop techniques has arrived. It is already a fact that some authors produce their own documents on a PC and print them off as and when required. Like electronic publishing, this allows instant updating and editing to be done. It also enables authors to become their own publishers which contributes significantly to the "grey" literature explosion. This type of distribution bypasses conventional publishing outlets such as booksellers and serial agents. It may also bypass conventional bibliographic control agencies. Desktop publishing allows the author to exercise total control over distribution of documents by combining author/publisher/bookseller functions as roles performed by one person.

The problems for national libraries

The problems which the developments outlined above pose for national libraries will be the subject of a separate chapter of this report. However, it is worth highlighting some of the more obvious ones here.

Technological developments challenge national libraries on several fronts. Firstly, they provide the method for considerable expansion of services and facilities. Online union catalogues allow better access to more materials nationally/internationally and give the impetus to cooperative collection development and cataloguing. Access to a variety of databases makes wider subject access and searching available. OCR means better chances of preserving text if not actual materials. The production of library records in electronic format enables more people to know of the library's collections and utilise them. CD-ROM may provide a means for obtaining and using much richer collections of documents at a reasonable cost than formerly without the expense of online searching and telecommunications costs, especially in areas where telecommunications are still in an under developed or unreliable form.

On the other hand, the same developments will pose considerable threats to the role and function of the national library. Several developments enable users to have direct access to information and even documents without the need to resort to the library (national or otherwise). At the same time increased access to bibliographic data may well increase demand on the resources of the national library which it does not have the funds to meet. This may mean either refusing to fulfil some of its roles or introducing a commercial element which has traditionally been absent. The use of electronic publishing techniques may make it difficult to continue with existing conceptions of legal deposit and bibliographic control. Storage and preservation of such documents may well become the preserve of the publisher who has very different attitudes to these functions from the national library. Copyright law and contractual arrangements for distribution and use will almost certainly cause problems for national libraries who wish to make documents in the "collections" generally available to the public.

This report will try to explore some of the advantages and disadvantages of technological development for national libraries in the light of what is currently happening within these institutions.

CHAPTER TWO

THE CURRENT SITUATION - ACQUISITION, RECORD-CREATION AND POLICY

The literature on the new developments in the information industry is huge and very little of it deals explicitly with national libraries. To discover the present situation, a combination of literature research and questionnaire was adopted to try to outline the present situation with regard to technological innovation and the reaction to it of the national libraries throughout the world.

About 120 national libraries (broadly defined) were invited to participate in the study. In the event 72 responded to the questionnaire although the replies varied considerably in their fullness and clarity. In the case of information about the collection and legal deposit of non-print media, the study drew on a previous international review carried out for the British Library Research and Development Department in 1983.

As might be expected the picture that has emerged is that the exploitation of technological developments is greatest in those areas where economic development is also most advanced. North America, northern and western Europe, Australasia and Japan all demonstrate extensive use of online databases, electronic mail and networking for catalogues. Similarly electronic publishing and desktop publishing are also most often found in these areas. In Eastern Europe and the Soviet Union the use of online union catalogues is growing quite rapidly and electronic publishing is also being exploited.

Not all functions of a national library are modified by the new technological innovations but many certainly are. The current scene demonstrates many different stages of development.

It may be useful to look at each of these functions in turn to determine the current state of the art.

a) a central collection of materials produced within or about the country or region in which the national library is situated.

   Nearly all national libraries claim to have a planned acquisitions policy although the criteria for these plans is not known and will vary considerably from one country to another. Only 7 libraries said they did

not have a planned acquisitions policy and, in general, the reason seems to be either that the country is so small that anything produced in or about that country is eligible for collection or that the type of legal deposit in force in the country concerned is such that the national library must receive whatever is deposited. In other words, the library has no control over what it receives and therefore cannot plan what will be added to stock.

Despite having no planned acquisitions policy, one library said that it does not collect computer software. Whether this is a matter of policy or lack of computer programs to collect in that country was not indicated. The former is probably the case but then this is really a basic form of acquisitions planning.

Collecting non-print materials

The collection by national libraries of non-print material generally, is very uneven. In some countries legal deposit legislation includes materials in, for example, audio or film format but rarely computer software. In others, deposit of audiovisual materials is carried out with an institution other than the national library (eg Sweden, Denmark) and in others again there is only voluntary deposit for these media (UK). In many countries there is no provision for a national resource for such materials. Production figures for these materials are very hard to find and, even when supplied, are based on fragments of evidence rather than comprehensive information. Although it is generally agreed that the market for such products, especially sound and video, is growing there are few figures to support the view.

The lack of legal deposit legislation is a major barrier to effective collection development in any field. This is particularly the case for non-print material. The fragmented nature of the production industry, the variety of formats and the interaction between amateur and professional production all contribute to the difficulty in identifying what has been produced. Obtaining copies and persuading producers to deposit copies, or even making them aware of their responsibilities for doing so, are all major difficulties.

The requirement to deposit exists in a number of countries either as legal deposit law or as a requirement for copyright protection. Nevertheless

deposit is uneven and unreliable. Many countries claim a success rate of between 60% and 90% for materials produced but it has to be asked how this figure is reached when many productions are unknown to the library authorities. Many industrialised countries report this range of success although their national output is quite large. Similar countries, with limited production facilities, often report much lower success rates, presumably because of the difficulty in tracing materials produced.

As countries introduce legislation for legal deposit this now often includes provision for non-print materials of various kinds. New legislation in Norway requires the deposit of most forms of non-print materials and this has been greeted with mixed feelings. Although generally seen as a major improvement, some librarians fear that the country will sink beneath a flood of cultural heritage which cannot be adequately collected, stored, recorded or used. New legislation in Italy is likely to include non-print material when the law is reviewed in the near future.

The role of the National Library in the collecting of non-print materials varies considerably from one country to another. In a number of developing countries the development of the national archives service has often preceded that of the national library. As a result the obligation to collect sound recordings and films, particularly, has been laid upon the national archives rather than the national library. This has led to a division in responsibilities in such countries as Malawi and Zimbabwe where the national archives collect sound recordings actively where they relate to the national culture but there is no national library as such to collect printed materials although there is a national library service in each of the countries. In industrialised countries there is also a division of responsibility. For example, in the United Kingdom the British Library collects, as well as printed materials, sound recordings of all kinds as the National Sound Archive is part of the British Library. The collection is extensive and has a high success rate in obtaining materials although, paradoxically, there is no legal deposit for materials other than printed ones. However film and video recordings are (voluntarily) deposited with the National Film Archive which is not part of the British Library at all. Broadcast material is also divided in the same way - television output going to the Film Archive and sound to the British Library. However, there is no provision for collecting other types of non-print material. Electronically-published material, material on CD-ROM and other high-tech media is obtained by the British Library only selectively and where there is neither a need or

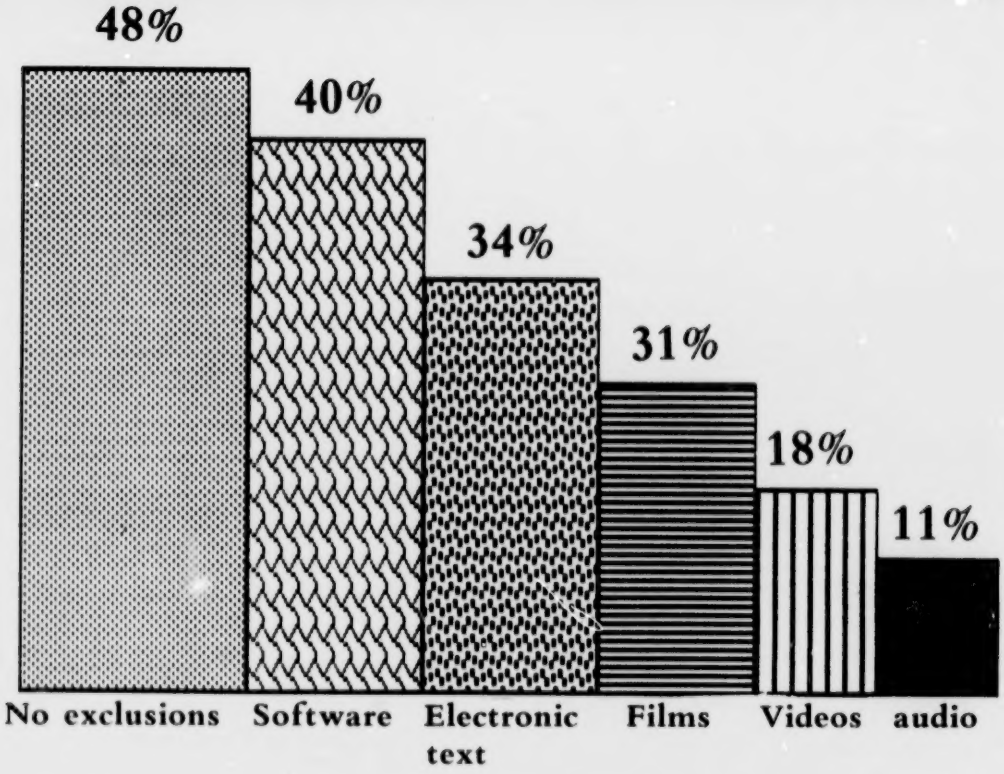
this is part of an experiment. A similar dichotomy can be found in Sweden and Denmark amongst others which could be cited.

In response to the questionnaire, 35 national libraries indicated that they have no restrictions on the types of material which they collect. In fact some did indicate restrictions but these were in relation to materials with which this report is not concerned. Broken down geographically, the national libraries which will accept any type of material into their collection are distributed as follows:

Africa	7
Latin America and Caribbean	3
Australasia	2
North America	1
Asia	11
Europe	11

It is significant that the majority of countries which replied that they had no restrictions in their collecting policy, actually have very low production figures so that the actual effort and commitment in building multi-format cllections is relatively small. In addition such formats as CD-ROM, desktop publishing and electronic publishing are virtually unknown in some of these countries with all-embracing policies. At the other end of the scale there are a few countries which are highly sophisticated in their use of technology and, again, attempt to collect all types of format. In the USA this is particularly true and the Library of Congress has taken a leading role, not only in collecting such materials, but also in their production. CD-ROM, online databases and the use of optical disc for preservation purposes, for example, are all part of LC activity.

Of the remaining 37 libraries, the range of materials which they do exclude is considerable and varies enormously from one library to another although certain basic trends can be discerned. The following table indicates just how different practices are.



Materials excluded from National library collections

The table demonstrates that there is more resistance to collecting the newer forms of information carrier (computer software and electronic publishing) than the older, more established forms of audio recording. This may be for several reasons. One clearly is the complexity of the hardware involved. The playing of sound recordings is an "old" technology, despite many innovative features with which some national libraries have been deeply involved. The use of computer software and electronically published material requires a range of sophisticated hard- and software which many national libraries would be reluctant to purchase because of its almost immediate obsolescence. In addition there are problems with contracts with suppliers if the material is not supplied on legal deposit which, in most of these cases, it is not. The difference that the hardware makes to collecting policies can be seen by the much smaller number of national libraries which exclude video as opposed to film. The latter requires complex and expensive equipment to run the film, high quality storage and technical expertise. Video can be treated in a similar way to a published monograph. In addition there are problems with the cost of films, especially full length "feature" films.

When looking at countries with small production industries in the field of audiovisual materials, it was found that these were excluded from collection policies because they were not available for collection. A similar situation exists with electronically-published material and those countries which do not have an opportunity to collect it because there is none produced automatically, exclude it from their acquisition programmes.

Although many libraries exclude computer software and electronically-published materials, most appear to include CD-ROM in their acquisitions profiles, if only because it is a medium on which a great deal of library material is made available. Because of this conflict of interests, it is difficult to determine which libraries collect CD-ROM because it contains material relevant to the collections and which collect them for professional reasons.

Questions were also asked about a variety of other types of document to build up a complete picture but these are less relevant to this study. For example, fiction, recreational material, photographs, theses, pamphlets and newspapers were amongst other types of material included in the possible list of exclusions.

Size of non-print collections

Libraries were asked to give some indication of the size of their audiovisual collections. Only 28 gave any figures other than those for printed volume or microforms. Microforms for the purpose of this study were regarded as surrogate printed formats and therefore outside the scope of the study.

The most comprehensive statistics available were for audio recordings although, even here, the information is uneven and incomplete. Very few libraries could give figures for acquisition of audio materials in the last 10 years. Even figures for the last two or three years were often unavailable or not supplied. For those libraries which did have figures available, the pattern of growth in collections was very uneven and displayed no discernible trends. Growth rates for 1988-89 varied from 85% (Turkey) and 73% (Chile) 2% (Deutsche Bibliothek). Several countries, notably Poland (-74%) recorded a severe drop in the number of recordings added to stock in the year 1989.

Only 20 libraries gave any indication of their collections of films and videos and these figures were so fragmented as to offer no basis for analysis. No attempt is made here to present them as they would be of no real value.

When asked about their collections of computer software only 5 libraries indicated they had any collections at all, although the Library of Congress is also known to have collections of such materials. The small size of such collections is shown by the figures for software added to stock in the last 3 years by the libraries which gave figures.

	1987	1988	1989
Haiti	5	6	9
Mexico	14	15	3
Denmark	-	2	11
Thailand	1	-	1
USA (National Agricultural Library)	7	131	93

One or two other libraries indicated they had acquired software but this was clearly for use in the library rather than for library stock.

Annual production

Figures of acquisition are of little meaning in isolation and should be seen against the annual production figures for different formats of materials.

Libraries were also asked to indicate the approximate size of the annual output of audiovisual materials in their country. Not one single library was able to provide these figures for any format in their own country. The problems of assessing the quantity of materials which might be collected by national libraries are discussed in chapter 4.

b) Maintain a comprehensive collection of foreign publications

Libraries were not asked specifically about materials produced outside their own country. As most national libraries do not collect other than printed materials from their own national output, it is most unlikely that many do so for foreign materials in whatever format. There are one or two exceptions such as the British Library National Sound Archive and the

Library of Congress, as well as the Phonotèque and Mediathèque in Paris but these are the exceptions.

c) Provide national leadership in library and information affairs

The role which national libraries have adopted in the leadership over the introduction of new technological methods again varies considerably. In the USA the Library of Congress has certainly led the field in the areas of optical disk technology for preservation purposes and the development of computerised cataloguing through the MARC Project. However, networking has largely been developed by OCLC, a non-profit but independent organisation without government funding. Similarly the national libraries in the Scandinavian countries have not necessarily been the prime leaders in such areas as networking and high technology development although they have always been ready to join such developments. In the United Kingdom the British Library has played a significant role in both developing and providing the funds for others to develop new technologies. The BL has been one of the leading libraries in developing CD-ROM products both nationally and internationally with a number of European national libraries through money provided by the European Commission. Other areas in which the BL has provided funds are Group IV fax, networking and OPAC developments, especially for the new building in St Pancras. Although the Bibliothèque Nationale in Paris has not necessarily played such a leading role, the new Bibliothèque de France will certainly develop the latest technologies in its futuristic buildings. The National Library of Canada has been at the forefront in the development of networking facilities and online catalogues. The work which NLC has done on Open Systems Interconnect (OSI) has gained worldwide recognition and the Canadian standard has virtually become the international standard through the ISO. This work has been further developed by the British Library and the Royal Library in The Hague. The National Diet Library in Japan has also instigated a number of new technological products although networking and communications technologies have also been developed through NACSIS. In less-technically developed countries the national library often has little role to play largely because of lack of funds and expertise. The more dynamic developments often take place in universities or in industrial/commercial organisations where there is a real economic need. New Zealand is one exception worth noting. The National Library's policy statement includes the following:-

"Leading national development has been implicit in the National Library's role for a long time, and can only be effective if it maintains high standards of service and has the support of other libraries and information providers. The Library with its strong policy advisory role and responsibility for information for all New Zealanders must ensure that frameworks and systems like the New Zealand Bibliographic Network are in place to maximise access across the country's library's resources."

d) Be the hub of librarianship and the prime mover in library developments

Generally those national libraries which have developed major new technological activities are also at the hub of library activity in their country although this is less true in a country such as the USA where initiatives are diversified. In Germany the Deutsche Bibliothek takes an encouraging rather than a leading role and much of the new developments are taking place outside its immediate sphere of influence at the many developments in the use of optical disc, telefacsimile, CD-ROM, electronic publishing and online catalogues at the TIB in Hannover. The German situation is made more complex by the work of the Deutsche Forschungsgemeinschaft (DFG) which funds a considerable amount of library activity and is responsible for the subject specialisation network in (West) Germany. In Australia the National Library is a prime mover and also at the hub of the Australian Bibliographic Network (ABN) and is the National Library of New Zealand. Similarly in Singapore, where new technologies are constantly being employed in the library world, the National Library is a centre for such developments. In many Latin American and African countries, however, the national library has a minor role in developing library matters and is frequently relegated to a supporting rather than a leading role. This is also true in some European countries, notably Albania and Greece although in Yugoslavia the network of national libraries, often linked to university libraries, is developing its own network online.

e) Provide a national information system to facilitate economic and social development at both national and personal levels

The role of national libraries in providing information on a national scale varies so considerably it is almost impossible to draw any general picture.

However, it appears that few national libraries in developing countries offer any real service although there is beginning to be some growth. For

example, although not technically a national library, the University of the South Pacific Library in Fiji, offers a range of bibliographies and research tools based on its holdings and information and also has access to a number of online searching facilities on behalf of libraries in the 11 countries which fund it. Several national libraries in Africa (Gabon, Ethiopia, Nigeria) have access to CD-ROM players which should enable them to provide information sources for industry and medical research in those countries although the frustration here is often that CD-ROM databases are often bibliographic in nature, giving access to references but not to actual text. Similarly the national libraries in Tunisia, Morocco and Algeria all have access to international databases of various kinds and have installed compatible computer software and hardware so that a North African network would be possible in the future. Full text CD-ROMs which are discussed elsewhere in this report are expensive and still cumbersome to manipulate.

In the developed library world the British Library offers a wide range of business information services exploiting online databases, telefacsimile and electronic mail. These are based on the Science Reference Information Service (SRIS) in London. Plans are underway for offering SDI services including document delivery. The National Library of New Zealand also offers a range of business information services through its Scientific and Technical Information Service (SATIS). In some countries the decentralised nature of national collections enables some national libraries to offer specialised services for industrial commercial customers or those working in disciplines essential to the economic and social infrastructure of the country. Thus the National Agricultural Library in the USA and the Technische Informationsbibliothek in Hannover (Germany) can offer such services although the first is a specialised national library and the second is not technically a national library as such but fulfils many roles of a national library as the special centre within Germany for scientific and technical literature.

f) Receive materials through legal deposit legislation

Although many national libraries do receive material through legal deposit this is by no means uniform and rarely includes non-print material and certainly not computer software or electronically-published materials. In fact, the whole question of what constitutes "published" in the electronic field needs considered investigation as does the concept of "depositing" such materials. The present state of the art has been considered under

"(a) A central collection of materials produced within or about the country or region in which the national library is situated" above.

g) Act as the national archive for non-published materials

This is not a function performed by all national libraries by any means. Many limit their collections to the printed materials produced within their country and leave manuscripts and other non-published materials to the National Archive. This causes fragmentation of collections and difficulties for researchers and publishers. In the case of non-print materials the difficulties are sometimes simplified because the national library does not collect, eg sound recordings or films, so that these materials, whether published or not, are to be found in the appropriate national archive instead. This is certainly true in the UK and Canada as well as Sweden, as examples. In the case of desktop publishing, the example provided by the Brautigan Library in Burlington, Vermont (USA) may well be the model for the future as this library accepts copies of works which have not been published and may never reach that stage. National libraries do not usually collect desktop publishing materials at present as they are often regarded as "vanity" publishing but this growing area of information generation may well repay closer attention in the future.

h) Create the national bibliographic record

Not all national bibliographic records are created by the national library, as already discussed. Generally, it appears that where the national library's catalogue is an automated one this provides the basis for the national bibliographic record as to automate the two separate activities is plainly uneconomic. Even here there are exceptions and different parts of the operation can be undertaken by different agencies. For example in the United Kingdom cataloguing of British Library stock and the production of the British National Bibliography are integrated but the assignment of ISBNs is undertaken by a commercial company, Whittakers. In Germany the national bibliography and the catalogue of the Deutsche Bibliothek are not synonymous and produced differently. The introduction of automated processes for cataloguing should enable these two functions to be integrated more fully in those countries where this is not already the case.

In order to achieve this integration the current state of catalogues in national libraries was examined.

Catalogue automation

National libraries were asked to indicate in what format they maintain their own catalogue(s). A variety of formats were suggested: cards; printed volumes; microform; online; CD-ROM and "other".

The automation of a library's catalogues clearly enables that library to perform a number of functions for its national clientele which were previously not possible. A properly planned automation programme can enable a national library to offer services which will contribute significantly to the information, economic and cultural growth of that country. The present stage of catalogue automation worldwide is very variable but shows considerable signs of improvement. The introduction of CD-ROM for library catalogues may well have a profound effect on automation and is already being used in a number of libraries in developing countries. The interesting phenomenon is that many libraries have made a technological jump from cards straight to either online or CD-ROM, avoiding the intermediate steps of a printed volume or records on microform.

Card catalogues

All libraries which responded to the survey, as well as many other studied through the literature, possess a card catalogue. This is no surprise as this has always been the basic form in which library records have been maintained, apart from the even easier "guard" type catalogue which contained records passed onto sheets of paper with additions passed in between as necessary. The limitations of the card catalogue need not be explored here but it is sufficient to note that in an era of high technology the card catalogue already appears almost an anachronism.

Printed catalogues

Relatively few libraries reported having their catalogues available in printed form. Although printed library catalogues have even more drawbacks than card catalogues because of their lack of currency and difficult nature to consult, they did (and in some cases do) provide wider access to the records of the national library's holdings. Therefore, those countries where such a printed version has not been available will feel an even greater benefit from the

development of online and CD-ROM than other countries where such printed version have been widely circulated (for example France, United Kingdom and USA).

Only 21 libraries out of the 72 surveyed indicated they have printed versions of their catalogues. A further 2 were identified from the literature.

Microform

Very few libraries mentioned having their catalogue in microform version. Only 12 libraries mentioned this format and several of these stated it was used for older records or particular types of material (eg manuscripts) only.

Online

Of the 72 libraries that replied to the questionnaire 30 have online catalogues or are in the final stages of introducing such catalogues. The literature search identified a further 4 such libraries. Of these 34, 17 were in Europe (including the USSR), 2 were in North America. The remaining 15 were scattered between Australasia (2), Africa (4), Asia (5) and Latin America (4). Libraries were asked to indicate whether or not their catalogue could be consulted remotely or only on site. Of the 34 libraries concerned, the catalogues of 24 can be consulted by remote users and several others are in the process of being developed for networking purposes. Online may have been interpreted in a very loose way to mean computerised but the basic effect is the same, namely to have a catalogue which can be manipulated by users to identify the items they require in the national library collection. Details of exactly which system or software has been used were not asked for. Very few national libraries have their entire catalogue available online; most have automated their records from a fixed date and have future plans for retrospective conversion. Such plans are expensive and the cost per use of older records may rise so high that the expenditure cannot be justified. Although national libraries are centres of historical as well as contemporary research, the use of newer material is still often larger than that of historical collections. Thus it is more cost-effective to convert records of recent material than older holdings.

CD-ROM

The use of CD-ROM as a medium for recording library holdings is gaining in popularity and is becoming more widely used. The technology is ideal for storing large quantities of data which requires manipulation in various ways. Fourteen

libraries said their holdings are already recorded on CD-ROM or are in the process of being mounted in this way. Most were in Western Europe as a result of a project being funded by the European Commission which includes the UK, Spain, France, Netherlands, Germany, Portugal, Denmark and Italy. Other libraries with CD-ROM catalogues include USA, Canada, Japan and Nigeria. The EC project includes not only national library catalogues as such but also national bibliographies which may not necessarily exactly reflect the holdings of the national library.

i) Make its collections nationally available

Many national libraries make their collections nationally available in one way or another. The most primitive method is to allow public access by personal visit and this is indeed the only way that some national collections are accessible. However, many national libraries do offer some form of interlending service or supply of photocopies of materials in their collections. There is an inherent conflict between the conservation of the national heritage and making it available through interlending policies. The problem has been resolved in various ways although there is often a mismatch between availability of materials and information about the materials held. In some cases the collections held by national libraries for interlending purposes are far more extensive than their catalogue records indicate. This is true of the British Library in the United Kingdom where only limited records of the holdings of the Document Supply Centre are nationally available while large sections of the collection are unknown and underused. In the case of many other national libraries their holdings are well publicised through the latest technology such as CD-ROM but the actual documents are not available through interlending networks. This is true for the Bibliothèque Nationale in Paris and the Deutsche Bibliothek in Frankfurt.

In many countries the interlending policy of the national library is very strict and may even be one of non cooperation. Many national libraries in several African, Asian and Latin American states do not regard themselves as providers of documents but as conservators. The problem is compounded by laws in some countries which make national librarians personally responsible for the materials in their care. Although national libraries in many countries do not take part in cooperative activities they do make their holdings available through interlending as a last resort. Those which take part in cooperative interlending networks are discussed in the next chapter.

j) Provide the focus for an international document supply system

Although this is a principle laid down by the appropriate IFLA guidelines (as mentioned previously) it is not, in fact, a function performed by as many national libraries as should be expected. In Europe the situation varies considerably. The British Library does act as such a focus for requests to and from the United Kingdom but with the growth of electronic networks giving access to holdings of information in a wide variety of libraries the tendency is to apply directly from a library in one country to a library in another. Thus the PICA networks in the Netherlands is a totally decentralised network in which the Royal (National) Library plays only a limited role. The Bibliothèque Nationale has a Centre de Prêt but this acts as a lending/copying centre only for incoming requests for French literature and other requests may be sent to any library in France. The Centre de Prêt does not offer to forward requests to other libraries in France. In Italy the National Central Library in Rome acts as a centre for requests from the UK but not elsewhere and the other National Libraries in Florence and Milan also play a role. In Belgium there is a totally decentralised system, improved by the introduction of CD-ROM catalogues but the National Library in Brussels does not act as a major international centre except for specific agreements. Most Scandinavian countries have a centre designated for foreign requests but this is not usually the National Library (where there is one) and in Iceland, for example, this function is fulfilled by the University Library in Reykjavik, although the forthcoming merger of the national and university libraries may simplify this role. In federal countries such as Germany (where the situation is very fluid at present) and Czechoslovakia and Yugoslavia there may be a number of centres either for each province or country or for specific subjects. A more centralised approach is adopted by Bulgaria, Hungary, USSR, Austria and Albania but the National Library in Poland does not carry out this function. In Greece, Spain and Portugal there is still a developing role for a national centre which, in Spain, is being undertaken jointly by the National Library and the Institute for Science and Technology (ICYT). The development of Porbase, the Portugese national network, should enable better access to holdings information but may well bypass the national library as such.

In North America the Library of Congress does not offer any exclusive services as a national centre and applications can be made directly to any library in the USA. The widespread use of OCLC enables libraries

internationally to have access to holdings information and transmit requests direct. The National Library of Canada does offer a service as a centre for international requests but again this is not exclusive. This is also true of the National Libraries of Australia and New Zealand. The National Diet Library in Japan receives a number of international requests but does not send requests outside Japan: this is left to the individual library to organise. This is true of many countries where the national library is prepared to provide copies, and occasionally loans, overseas but does not act as a centre for outgoing requests. Neither does it offer a location service for international requests. The majority of national libraries do not really take part in interlending in any major way although this is generally seen as one of their obligations under the UAP Programme. In most parts of Africa, Asia and Latin America the national library plays a fairly minimal role in interlending internationally.

The introduction of online catalogues has had some impact on international interlending patterns worldwide. Access to direct holdings information makes the old concept of sending all requests to one national centre obsolete although there are still problems about exhausting national resources before exploiting those in other countries. Utilities such as OCLC, UTLAS and the VISCOUNT-PICA-DBMIST (UK-Netherlands-France) international networks and the growth in the use of CD-ROM to record holdings such as the scheme for UK, France, Belgium, Spain, Italy and Netherlands, all make a total reconsideration of these guidelines essential.

k) Act as a national resource for non-printed materials

The question of acquisition and collection on non-print material has been discussed earlier in this chapter and should not require much further detail here. It should be pointed out, however, that just as national library collections are generally deficient in non-print materials, this is also often true of national bibliographies. Most national bibliographies rely on some kind of national collection for their records and the lack of such centres for many countries means that there is little information about the national output. This severely hampers the national library in any attempt to act as a resource for non-print materials, whether to provide actual copies of them or even information about what is currently available. Only when national collections are of some standing and depth can this be

achieved. This once again relates to the conflicting and complementary roles of national libraries and national archives.

l) Provide a national referral service

The provision of a national referral service has been very little investigated and further work needs to be done before a true evaluation of such a service can be offered. Basically the concept is to provide a centre to which enquiries can be directed but which will not, of itself, respond to such enquiries, but rather provide information about which institution or person could best deal with the enquiry. This requires a register of expertise, information holders and research/development indexes. Very few libraries offer such a service. The University of the South Pacific Library in Fiji offers information about research being carried out throughout the South Pacific; the British Library provides information through its printed and online service Current Research in Britain which lists research projects being carried out in the UK and Ireland but these are isolated exceptions. The UK and New Zealand both have national libraries which can help with referring enquiries about product information and availability for industry and commerce.

m) Undertake to conserve the national printed heritage

Conservation is one of the major concerns of the present library environment. This requires a considerable knowledge of a range of skills and techniques including historical bibliography, literary history, photographic and chemical techniques and the use of computers for such techniques as Optical Character Recognition, Optical Disk Technology and conservation techniques in non-paper fields.

Several national libraries have taken a major lead in this area using the most up-to-date technology, encouraged by the IFLA Core Programme on Preservation and Conservation (PAC). The work of the Library of Congress in the use of both chemical and optical disk techniques for conserving materials in its collection is known worldwide and this work is now being built upon in the PAC regional centres in Caracas, Leipzig, Paris, Tokyo and Canberra. The British Library has a major preservation programme and operates a National Preservation Office which gives advice nationally. In addition the National Sound Archive of the British Library has developed CEDAR which is the world's most advanced system for removing background

noise and interference from archival sound recordings, making them virtually indistinguishable from modern recordings. Most national libraries attempt some form of conservation by microfilming and transferring to other media when appropriate or necessary although many lack the funds to carry this out efficiently for long-term preservation.

Many problems cannot be solved by the use of modern technology as a simple tool. Problems of climate and physical buildings are obvious but the more difficult areas of the media onto which information has been committed also create problems such as the palm leaves of Sri Lanka or the woodblocks of Bhutan. The National Library of Bhutan has a wide-ranging microfilming project to make permanent copies of manuscripts throughout Bhutan before any more are destroyed by the ravages of weather and fire. This is being funded by the UNDP.

The use of new technology may help to preserve both original materials in national libraries and also create a permanent record of the contents of such documents even if they become unusable or are destroyed. The positive approach adopted by most national libraries is encouraging even if funds are often not available to carry out such programmes.

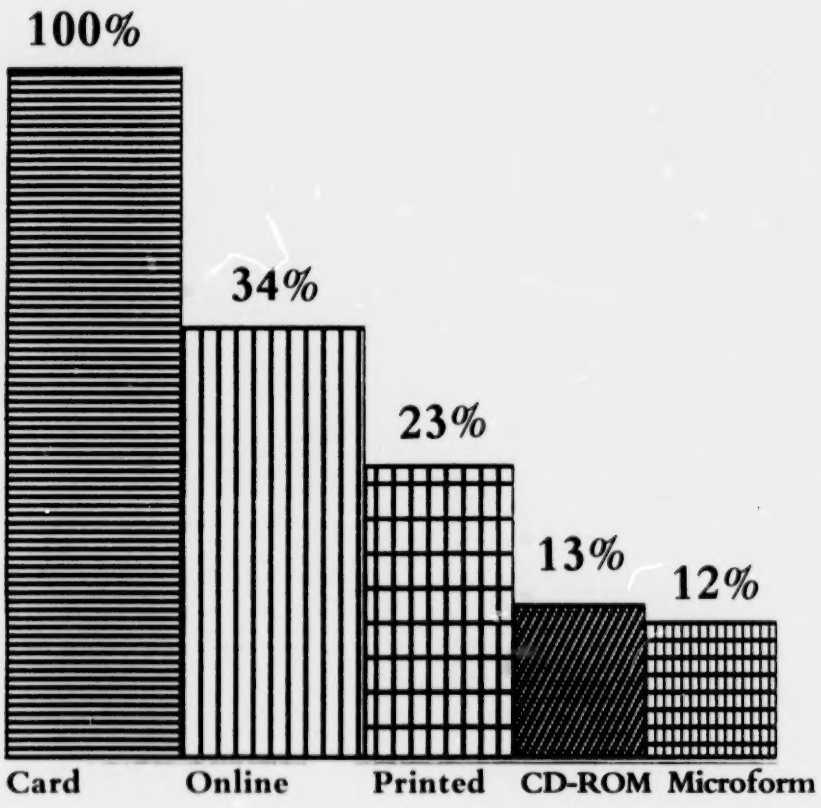
n) Provide a central coordinating point for research in library and information science

The role of national libraries in research and development in library and information science has been the subject of a recent study published elsewhere. This showed that only 29 national libraries indicated any involvement in research and development and, of these, 13 were concerned only with research into the needs of the national library itself. Twenty national libraries said they did not carry out research themselves but coordinated what was done nationally and a further 7 said they supported research in one way or another, usually with grants for projects. This means that less than half the national libraries have any real involvement in research and development. Some, such as the Library of Congress, have developed considerable expertise in technological fields which is made available throughout the USA. The British Library has played a significant role in developing CD-ROMs and electronic messaging networks such as the Joint Academic Network (JANET) and Project Quartet which aims to link academic reseachers in several institutions throughout the UK. TIB in Hannover, a quasi-national library, has also played a significant role in

the development of new technologies and the National Library of Canada, as mentioned elsewhere, has invested huge amounts of time and money in developing OSI Standards, but the majority of national libraries do not see this as an important role.

o) Provide a national service for the handicapped

The provision of library services for the handicapped, whether mental or physical, is not an activity undertaken by many national libraries. In most countries this is a separate function and undertaken by a specialist institution, usually funded either by charity or by the appropriate government ministry dealing with health matters. A notable exception is the Library Service for the Blind and Physically Handicapped of the Library of Congress in the USA. There is a pressing need for the establishment of national centres for the handicapped to enable them to obtain the same materials in the necessary formats as their unimpaired counterparts. Although handicap may take many forms, the problems encountered most often can be alleviated by the solutions required for the visually impaired as a basic solution is to transform the document from printed form to audio or touch in some way. It is very difficult to locate materials in particular formats for the visually impaired and there are very few union catalogues available for this purpose. The USA and Japan both have braille union catalogues but increasingly the requirement is for sound recordings and once again the failure of national libraries to collect these materials or information about them severely impedes progress for the visually impaired. Because of the lack of collaboration between national libraries and national libraries or centres for the handicapped there is a danger of services to this particular group of readers becoming fragmented. The use of new technologies for the creation of union catalogues, transferring text from one format to another and such innovations as the Kurzwell Reading Machine should all move towards reducing the dichotomy between these two types of service. With the growth of audio collections in general libraries (and national libraries) the distinction between these two types of service should rapidly be diminished.



Formats in which National Library catalogues are stored

BIBLIOGRAPHY

New technological developments

PLASSARD, Marie-France and LINE, Maurice. The impact of new technology on document availability and access, Wetherby (UK), IFLA Programme for UAP, 1988

Knowledge Warehouse: report of the Project Phase 1, Volume 2, London, Publishers' Database Ltd, 1987

Legal deposit

PINION, Catherine F. Legal deposit of non-book materials, London, British Library, 1986

Role and function of the national library

ANAUR, Hedwig. The role of the national library in information for development. In: ANUAR, Hedwig. Issues in Southeast Asian librarianship, Aldershot, Gower, 1985, 39-50

CORNISH, Graham P. The involvement of national libraries in research in library and information science. International Journal of Information and Library Research, 1989, 1 (1), 53-58

DAVENPORT, E and DAVENPORT, L. Promiscuous publishing: some problems of protection. Online 89: Proceedings of the 13th International Online Information Meeting, 1989.

PFLUG, Gunther. Festgabe. Nationalbibliotheken im Jahr 2000, Hrsg Sieghardt v Kockritz und Kurt Nowak. Frankfurt-am-Main, Buchahandler-Vereinigung GmbH, 1988

HUMPHREYS, K W. A national library in theory and in practice, London, British Library, 1988

LINE, Maurice B. The role of national libraries: a reassessment. Libri, 1980, 30 (1), 1-16.

LINE, Maurice B. National library and information needs: alternative ways of meeting them with special reference to the role of national libraries. IFLA Journal, 1989, 15 (4), 306-312

LINE, Maurice B. Do we need national libraries, and, if so, what sort? An assessment in the light of an analysis of national library needs. Alexandria, 1990, 2 (2), 27-38

LINE, Joyce. National libraries around the world 1988-1989: a review of the literature. Alexandria, 1990, 2 (1), 1-27

LINE, Maurice B. National library and information needs: alternative means of fulfilment with special reference to the role of national libraries. Paris, Unesco, 1989. (PGI-89/WS/9)

National libraries: their problems and prospects. Symposium on national libraries in Europe, Vienna, 1958, Paris, Unesco, 1960

SYLVESTRE, Guy. Guidelines for national libraries. Paris, Unesco, 1987. (PGI-87/WS/17)

WILSON, Alexander. Problems in determining the role and function of the national library as part of library and information service development. In: DUDLEY, Edward. The development of national library and information services, London, Library Association, 1981, pp12-37

Specific countries and regions

Africa

Sudan

WEYERS, Richard M. Sudan's National Documentation Centre. African Research and Documentation, 1989 (49), 10-15

America

Canada

TURNER, Fay. Facilitating resource-sharing in an automated environment: an update on the National Library's Interlibrary Loan Protocol. Canadian Library Journal, 1990, 47 (5), 347-352

USA

HOWARD, Joseph H. The role of the National Library of Agriculture. Rural Libraries, 1989, 9 (2), 49-54

Latin America

Nicaragua

FRANKS, Tony. The National Library of Nicaragua. New Library World, 1990, 90 (1071), 167-168

Asia

Arab World

RAHMAN, Sajjad ur-. Information resource sharing and network projects. In: SARDAR, Ziauddin (ed). Building information systems in the Islamic world: papers presented at the 2nd Congress of Muslim Librarians and Information Scientists, Kedah, Malaysia, 1986, London, Mansell, 1988, pp125-141

ZAHAWI, Faria. A regional seminar on national information policies in the Arab States. Program, 1990, 23 (3), 307-310

Bhutan

SHAW, Felicity. Library developments in modern Bhutan. Bulletin of the International Association of Orientalist Librarians, 1986, (28/29), 12-17

Japan

ANONYMOUS. [Envisaging the basic plan for establishment of the Kansai-kan National Diet Library: a report by the working party.] Toshokan Zawshi, 1989, 83 (6), 332-333

NOZAKI, Shigeru. [A new phase in public video libraries: towards the establishment of a national centre in Japan.] Biblos (Tokyo), 1990, 41 (3), 1-8

Syria

KUTOVENKO, N I and LJAKHAM, G. [Current state and prospects for computerisation in the Al Asad National Library of Syria.] Bibliotekovedenie i Bibliografia za Rubezhom, 1990 (125), 83-84

FILSTRUP, E Christian. The Syrian National Library. Bulletin of the International Association of Orientalist Librarians, 1986, (28/29), 18-19

Taiwan

HERBERT, Penny A. Taiwan's new National Central Library. East Asia Librarians' Group of Australia Newsletter, 1989, (15), 3-8

Australasia

Australia

WAINWRIGHT, Eric. Conspectus and the National Library of Australia. Australian Academic and Research Libraries, 1989, 20 (1), 16-22

STEELE, Colin. The review of the National Library of Australia, Outlook on Research Libraries, 1990 (October), 3-9

New Zealand

HILL, Sallie. Business information requirements and the role of the National Library. New Zealand Libraries, 1989, 46 (1), 7-9

SCOTT, Peter and NEVILL, Alison. National Library at the crossroads. New Zealand Libraries, 1990, 46 (6), 11-13

Europe

Europe - general

CORNISH, Graham P. Interlending and document supply in Europe. Paris, Unesco, 1990. (PGI-90/WS/13)

European Communities

COMMISSION OF THE EUROPEAN COMMUNITIES. Action programme to promote the development of the audiovisual industry "Media" 1991-1995 (COM (90) 132 final)

COMMISSION OF THE EUROPEAN COMMUNITIES. Communication from the Commission to Parliament on audiovisual policy. (COM (90) 78 Final)

HANSON, Terry. A survey of European Communities databases. Aslib Proceedings, 1990, 42 (6), 171-188

SMITH, Robert. European national libraries and CD-ROM; a cooperative project. Vine, 1989, (76), 24-26

Eastern Europe - general

SOROKINA, T J and FENIN, J I. [International automated system of union catalogues of foreign serials held in libraries of CMEA member-states (MAKSI): ways of realisation and prospects of development.] Bibliotekovedenie i Bibliografia za Rubezhom, 1990 (124), 54-62

VOSTRIKOV, A N and FENIN, J I. [Interaction of the national libraries of socialist countries in the field of automation.] Bibliotekovedenie i Bibliografia za Rubezhom, 1990 (125), 77-82

Belgium

ROELANDS, J. [The future of national libraries.] Bibliotheek -en Archiefgids, 1989, 65 (2), 236-241

Czechoslovakia

GULDANOVA, M. [Union catalogues in national control of foreign literature in Czechoslovakia.] Bibliotekovedenie i Bibliografia za Rubezhom, 1990 (124), 71-78

Finland

HAKLI, Esko. The national library as a decentralised organisation - the case of Finland. Paper presented to the IFLA 56th General Conference, Stockholm, 1990. (Paper 68-NAT-2)

France

LADURIE, Emmanuel Le Roy. La Bibliothèque Nationale. Alexandria, 1989, 1 (2), 1-6

Germany

HOFFMANN, Gudrun. [Computerised retrieval from the systematic catalogue: the music collection of the Deutsche Statsbibliothek.] Zentralblatt fur Bibliothekswesen, 1989, 103 (6), 259-261

SCHMIDTMAIER, D. [The position of the Deutsche Statsbibliothek in the reformed librarianship in Germany.] Bibliotheksdienst, 1990, 24 (2), 155-162

WOLF, Dieter. [Accelerating and improving the national bibliographic services of the Deutsche Bibliothek.] Zeitschrift fur Bibliothekswesen und Bibliographie, 1989, 36 ( ), 72-74

ZICK, Wolfgang and HAGEMANN, Hans. Neue medien in der TIB und ihre Auswirkungenauf die uberregionale Literaturversorgung, Hannover, TIB, 1990

Hungary

BERKE, Btoszegi Z. [Achievements and plans of the Hungarian National Serials Database.] Konyvtari Figyelo, 1989, 35 (2), 135-150

KAPOSVARI-DANYI, Eva. [Existing and projected services of the Special Library for Library Science.] Tudomanyos es Muszaki Tajekoztatas, 1989, 36 (10), 428-430

Italy

LUNATI, G. [Legal deposit of publications.] Bolletino d'Informazione AIB, 1989, 29 (1), 61-64

MANDILO, Anna-Maria. [50th anniversary of the legal deposit law.] Bolletino d'Informazione AIB, 1989, 29 (4), 481-485

Norway

RUGAAS, Bendik. Developing a new National Library in Norway. Alexandria, 1990, 2 (2), 41-49

ANONYMOUS. [Legal deposit law - shall we drown in our own heritage?] Synopsis, 1990, 21 (5), 221-230

ANONYMOUS. [New law on legal deposit in Norway.] Synopsis, 1990, 21 (4)

Poland

DZIERAN, Stanislaw. [The information system of the National Library: present state and future plans.] Bibliotekarz, 1987, (12), 1-6

Romania

BADEA, N et al. [Computerisation of the National Library - the Folio Project.] Probleme de Informare si Documentare, 1989, 23 (1), 13-26

BANCIU, Doina. Automation of the Romanian National Library. UNISIST Newsletter, 1990, Special edition on Romania, 13-14

USSR

KORJUS, O and REIAL, M. [The future National Library of Estonia.] Zentralblatt fur Bibliothekswesen, 1989, 103 (4), 166-167

Sweden

ANTONSSON, Brigit. The national library's role in developing a national information policy - the case of Sweden. Paper presented to the IFLA 56th General Conference, Stockholm, 1990. (Paper 67-NAT-1)

United Kingdom - Scotland

Evolution of automation in a national library: the experience of the National Library of Scotland. Program, 1990, 24 (1), 1-19

CHAPTER THREE

THE CURRENT SITUATION - NETWORKING AND COOPERATION

Networking is a growing activity and can be found in many areas, both developed and developing. There is still a basic view that resource-sharing must be a "good thing" and there are indications of many attempts to develop cooperative ventures for just this reason without any true foundation for making the system work effectively.

Links with other library catalogues

Although a number of libraries indicated that their catalogue was available to remote users through some kind of online system, very few showed they were actually linked to the catalogues of other libraries. The point of this part of the questionnaire was to try to find out where the catalogues of national libraries were linked to catalogues of other libraries for the purposes of exchange of information such as cataloguing, acquisitions procedures and availability as well as the more usual concept of the union catalogue which is dealt with separately in this report.

Generally it was not possible to determine whether links were just for interlibrary loan or for other purposes as well. The nature and levels of the links varied considerably. In Yugoslavia, all the national libraries are linked together through a national libraries network which also includes many of the university libraries. This is also true in the United Kingdom where the three national libraries (the British Library and the National Libraries of Scotland and Wales) belong to JANET (the Joint Academic Network) through which information about their holdings can be accessed by any member of the network. Primarily this network is not for interlending but other types of messaging although there is an ILL facility. In some countries virtually all major libraries are linked together although this is more common in smaller countries such as Singapore and Israel than in those with either large geographical spread or a considerable number of different types of library.

Union catalogues

One of the major roles of any national library should be to act as an information point to locate material within the country concerned, especially for those outside that country seeking copies of documents. By no means do all national

libraries fulfil this role adequately, or at all. In all, 25 libraries in the survey indicated that they did not maintain a union catalogue. In some cases this is totally justified as the function may be fulfilled by another national library in that country. For example the National Agricultural Library in the USA does not maintain a union catalogue but this is carried out by the Library of Congress. Similarly the Deutsche Bibliothek does not maintain a union catalogue because of the network of regional catalogue and subject specialisation libraries in Germany. The Maldives Republic does not have a union catalogue but the size of the library population there probably renders such a catalogue unnecessary. A number of countries reported either that there is a union catalogue maintained by some other institution or that there are other union catalogues besides that maintained within the national library. This is the case for a variety of countries such as United Kingdom (many specialised union catalogues maintained by subject or language institutions, some regional catalogues and an independent online catalogue), Malaysia (where there are a range of regional catalogues on microfiche), Italy (which has a separate union catalogue institution), and many countries where there is a separate catalogue for scientific and technical publications as in Chile. In Japan there is a range of union catalogues including one compiled from the records of 52 libraries recording their holdings of foreign books, a union catalogue of braille and recorded sound, and a union list of newspapers on microfilm. Other union catalogues of Japanese and foreign serials and Japanese books are compiled by the National Centre for Science Information Systems (NACSIS). The Japan Medical Library and the National Institute for Japanese Literature also produce union catalogues. The Japanese picture is reflected in many countries throughout the world. Data on these catalogues was not collected as they are not maintained by national libraries but it seems unlikely that many of them are automated except in the Scandinavian countries and some other western European library networks. It is worth noting that in several countries where the national library does not maintain a union catalogue, neither does anyone else, thus leaving that country without any information on the holdings of its different libraries and making international library cooperation very difficult.

The format in which union catalogues are maintained by those national libraries which are responsible for them varies considerably, as for their own holdings catalogues. In the mainland Scandinavian countries there is a complex network of union catalogues created by cooperative networking and including a wide range of library holdings, besides the appropriate national libraries. Whilst these are maintained by national libraries as such in Sweden and Denmark, in Norway and Finland they are the responsibility of an appropriate university library, acting

in the role of national library in this case. In Finland much of the work for creating a union catalogue has been undertaken cooperatively. Whatever the methodology, the national libraries in this region are all linked to union catalogues in electronic form which can be interrogated online anywhere in Scandinavia. In the case of the Nordic Union Serials List (NOSP) the information is also available on microfiche.

Elsewhere in Europe there are online union catalogues in many countries such as the Netherlands, Belgium, Italy, Portugal, United Kingdom, France, Switzerland, Germany and Austria, Yugoslavia has a network of union catalogues based on each national library and in Hungary there is an online union catalogue for serials as in most of the former Socialist states of Eastern Europe. The British Library Document Supply Centre's holdings are also available through the VISCOUNT network. However, in several of these examples the national library as such does not create the master records or maintain the database but rather participates in that operated by someone else.

In North America the National Library of Canada maintains an online union catalogue but in the USA this function is fulfilled, de facto, by OCLC which has become the national online catalogue by the very comprehensiveness of its coverage and scope.

In Africa the State Library in Pretoria (South Africa) maintains a union catalogue online for the Southern African interlending system but not all other national libraries in the network (Zimbabwe, Lesotho, Botswana, Namibia, Swaziland) have access to the information yet. At the other end of the continent there is an internal online catalogue at la Bibliotheque Generale in Rabat in Morocco and other union catalogues are maintained in various centres throughout that country.

Asian libraries generally have limited access to union catalogues in machine-readable formats. Japan has an online network but it is not a union catalogue as such and is not maintained by the National Diet Library. Singapore has an online catalogue in the SILAS database which includes nearly all libraries of any significance in that state. Israel also has an online union catalogue based on the major academic libraries there. Online union catalogues will arise in other countries as mechanisation progresses and is likely to develop in a number of Arab states in the near future.

Both Australia and New Zealand have well-organised and comprehensive union catalogues based on the Australian Bibliographic Network (ABN) and the New Zealand Bibliographic Network (NZBN) respectively. Apart from Fiji, where the role of the University of the South Pacific is international in scope, it seems unlikely that another national library will develop a union catalogue because of the limited number of libraries in each island state.

In Latin America there are online union catalogues in both Venezuela and Chile, both of which concentrate on academic libraries in their respective countries. Although both Mexico and Brazil have online catalogues in their national libraries they do not at present sponsor a union online catalogue. Because of their size most Caribbean states may not find an online national union catalogue of great benefit but a regional one might well be developed in the future.

Links with networks

Libraries were asked to indicate whether or not their library was linked to a library network, whether in their own country or elsewhere.

Libraries were particularly asked not to list databases to which they subscribed but only those specific library networks to which they belong.

Many libraries were unable to distinguish between being linked to other library catalogues and simply belonging to a network. This was due, in part at least, to the fact that the distinctions between dedicated links between two or three major libraries for their own purposes and the larger general networks are very unclear.

Of the 72 libraries who responded to the questionnaire 33 have links with library networks or with a group of other libraries. Geographically these can be divided as:

Australasia	2
North America	1
Latin America	4
Europe	20
Asia	5
Africa	2

Not all of these were libraries which have automated catalogues of their own. This leads to considerable speculation as to the understanding of the word "network" and also to ask whether some libraries actually use online networking services although they have no automation themselves. This is not an uncommon phenomenon and was the experience of the British Library (for example) for several years.

In Africa SABINET is used by both national libraries in South Africa although most other libraries in southern Africa do not yet have access to it. Botswana, for example, did not mention SABINET although the national library there is linked to over 20 branches of the national library service throughout Botswana and can therefore trace materials in those collections through its centralised acquisitions programme. This is not "networking" as generally understood as all the libraries belong to the same administrative unit and are not therefore networked externally.

In the case of Asia the 5 countries which said they were members of networks exhibited very different characteristics. Singapore has a sophisticated database, SILAS, to which the national library not only belongs but which it also supervises. A similar situation exists in Israel where all academic libraries belong to a network including the Jewish National and University Library. Both of these countries have automated catalogues within the national library. Although the national library in Thailand does not have either an automated catalogue of its own or an automated union catalogue (in fact there is no union catalogue in the national library as such), the national library does claim to be in a network with the Thai National Information System (THAI NATIS) including its humanities and social sciences functions and also with the national exchange and interlibrary loan network. In the case of Malaysia, where the national library catalogue is automated with an OPAC function, the library has access to databases on Malaysian patents and current affairs but is not in a network as such. Sri Lanka, where there is little automation, claims to belong to several networks but this term has been used loosely. The networks cited are ASTINFO, APINESS and SLISTINET.

Although the National Diet Library offers networked bibliographic information this is not regarded as belonging to a network as such as there is no interaction. Rather it is a matter of the National Library providing a one-way service.

In North America both the National Library of Canada and Library of Congress belong to many networks, both regional and national although neither actually took part in the survey as such. In addition the National Agricultural Library in the USA belongs to both the OCLC and to the worldwide AGLINET database and network to which it is a major contributor.

The European scene is very complex. The Scandinavian national libraries belong to both national and regional networks for exchange of bibliographic records and interlending purposes. In the United Kingdom the British Library belongs to VISCOUNT, JANET and CURL (consortium of University Research Libraries). The National Libraries of both Scotland and Wales also belong to these networks. In the Netherlands networking is well advanced because of the decentralised library system there and the National library is a major contributor and user of the network (Pica), Yugoslavia has a network for national libraries in each republic. In Italy the National Central Library in both Florence and Rome belongs to the SBN (Servizio Bibliotecario Nazionale) which links most libraries with national status in Italy.

The tiny state of Liechtenstein national library belongs to a network centred on St Gallen in Switzerland as it is treated by the Swiss as part of their national networking for library purposes.

The decentralised specialist libraries in Germany do not belong to a network as such although the Deutsche Bibliothek in Frankfurt does belong to WIN, the German Research Network which is similar to JANET in the UK.

In the USSR several national libraries in the different republics indicated they belong to networks of various kinds but this is probably on a cooperative basis rather than as members of automated library networks as such. For example, the National Library of Azerbaijan indicated being in a network with the Ministry of Culture in Baku and the National Library of the Ukraine mentioned several libraries in Kiev as well as the Lenin State Library in Moscow and the All Union Library of Foreign Literature, again in Moscow.

In Latin America the National Library of Mexico is linked both to LIBRUNAM based on the Ciudad Universitaria in Mexico City and to the Catalogo Colectivo de Publicaciones Periodicas. The National Library of Costa Rica in San Jose indicated that it is linked to the Public Library System but it seems doubtful if this is a network as such. The National Library of Chile also belongs to a network through the National Network for Bibliographic Information in that

country. Similarly the National Library of Venezuela is linked to a a number of major libraries in Caracas but, again, it is not clear if these links are by computer or simply by agreement.

Both Australia and New Zealand have major national bibliographic networks to which the national libraries belong and which they administer. More major libraries in each country belong to these, giving considerable interchange between the national library and other libraries.

Planned links

Those libraries which are not networked with other libraries at present were asked to indicate if they have any plans to join or create such a network in the future. Whilst negative answers may indeed be true, those who said that they had such plans may well have based their reply more in optimism than reality. Only 4 national libraries, Brazil, Bulgaria, Iran and Mexico, actually said they have no immediate plans to extend their networking, or create one where appropriate. Thirty-three other national libraries indicated that they have plans for networking in the future. Their geographical spread is interesting. Although North America and Europe are seen as the cradle of library automation and networking, there are more libraries in Europe still planning network development than there are in Africa or Asia.

Africa	9
Asia	11
Europe	12
Latin America	1

In Europe plans are in hand for networking facilities in Czechoslovakia (Slovak National Library), Denmark (Faroe Islands). Germany (Deutsche Statsbibliothek), Greece, Hungary, Iceland, Ireland, Italy (National Central Library in Rome), Poland, Romania, Switzerland, and USSR (Ukrainian SSR). Some of the plans are clearly long-term whilst others may be near fruition.

In Africa plans are in hand for networking facilities in Angola, Botswana, Congo, Lesotho, Madagascar, Morocco, Nigeria, South Africa (South Africa Library), and Swaziland. The national libraries in Botswana, Swaziland and Lesotho, as well as the South Africa Library, are planning to link into, or expand their access to other libraries, via SABINET, the South African Bibliographic Network.

Asian libraries which plan for networking in the near future are in Bangladesh, Japan, Malaysia, Maldives, Nepal, Philippines, Qatar, South Korea, Sri Lanka, Thailand and Turkey. In Malaysia the National Bibliographic Network is at the planning stage and this will link the National Library to numerous major libraries throughout Malaysia. No other library indicated the nature, extent or timescale of any planned networks. As some of the countries reporting networking plans are very small, or have small library populations, networking may well be regional rather than purely national.

The only library in Latin America and the Caribbean which reported any expansion plans for networking is the National Library Service of Belize but, again, these plans were not given in any detail.

Networking and acquisition

Libraries were asked if they used their membership of any kind of network for deciding on acquisitions policy or acquisition of specific materials, either by type of material or by subject. Nineteen libraries said they use their network membership for this purpose although the ways in which this is exercised varies considerably from one situation to another.

Although many libraries said that they did not use membership of a network, many national libraries do actually consult with other organisations with regard to format. For example the British Library does not purchase films and videos because this is the work of the British Film Institute and National Film Archive; the Royal Library in Copenhagen does not collect these materials because it is the responsibility of the National Film and Sound Archives in Arhus. In countries such as Germany, where there are a number of specialised national centres such as TIB in Hannover (science and technology) and ZBM in Cologne (medicine) there are formal agreements about acquisitions on a national scale. In the United Kingdom, although not acknowledged on the questionnaire, the British Library does not acquire material in the Welsh and Gaelic languages: these responsibilities are devolved to the National Library of Wales and the National Library of Scotland respectively.

In Europe a number of national libraries indicated they consult with other libraries when considering purchases although not all do so through a network as such. The National Library of the Ukraine (USSR), the National Library of Latvia (USSR) and the National Library of Lithuania (USSR) consult with the state medical library, the library of the appropriate Academy of Science and the State

Agricultural Library as well as with other major academic libraries in their respective republics when making acquisitions. This is also true of the Cyril and Methodius National Library of Bulgaria. In Czechoslovakia there is planned acquisition of foreign periodical literature, especially in Western European languages. This cooperative acquisition is in conjunction with public libraries and other libraries within the Czechoslovak network. Although the National Library of Slovenia (Yugoslavia) does not at present cooperate with other libraries in acquisitions policies and practice, there are hopes for this in the future.

In the Netherlands the Royal Library does not cooperate for current acquisitions but does consult through the Pica network when acquiring older and rare materials to ensure adequate coverage without unnecessary duplication. The National Library of Austria cooperates with a number of academic libraries in Austria when purchasing expensive materials especially in the fields of theology, philology, cultural history and natural sciences. The National Library of Scotland has similar arrangements with certain research libraries in Glasgow and Edinburgh to coordinate acquisitions in special areas such as linguistics and Scottish history and culture.

A similar pattern emerges in Australasia. The National Library of Australia cooperates with major academic libraries, especially in the purchase of microforms, antiquarian materials and pictorial materials. In addition the acquisition of materials in Japanese, Chinese and Korean is coordinated with the Australian National University in Canberra. In New Zealand cooperation for acquisition is in its infancy but already exists for expensive materials and the development of a conspectus programme for New Zealand should bring about more planned acquisition through networking.

In the USA the National Library of Medicine and the National Agricultural Library have clearly defined acquisitions programmes and consult between themselves before acquiring materials which are on the boundaries of their 2 spheres of interest.

In Africa only 2 countries, South Africa and Morocco, indicated that they have any cooperative role in acquisitions. In the case of South Africa the State Library in Pretoria consults the Africa Institute regarding politic and the South Africa Library (the other national library) in Cape Town on Africana. Social science materials are acquired in conjunction with the University of South Africa Library. The South African Library in Cape Town also consults with

major university libraries and the Library of Parliament on the acquisition of South African materials generally.

The National Library of Morocco indicated that a range of other libraries are consulted before materials are acquired. These include the Bibliotheque Nationale in Paris, the Institute of Manuscripts in Kuwait, the Bibliotheque Nationale in Tunisia and the National Library of Canada. It is not certain whether these consultations relate to modern materials which can be copied (journal articles) from these sources or antiquarian and microform collections which may be borrowed rather than bought. The Library of the Saudi Foundation is consulted about the acquisition of microforms.

The type of answer provided by Morocco may also underline the reply given by the National Library of Turkey which consults the British Library when considering acquisitions. The only other libraries indicating any cooperative acquisitions activity were those of Qatar and Mexico, which did not give further details and the National Library Service of Sri Lanka which consults with major university and academic libraries about purchases in most areas of knowledge.

Networking and interlending

The involvement of national libraries in interlending and document supply has already been mentioned as an activity which is very variable. Clearly those national libraries which do not see interlending as a major function will not be involved in any kind of networking for this purpose! Those that do take part in interlending are not always in membership of any network which makes exploitation of their holdings and facilities difficult. The national libraries of the Scandinavian countries belong to the appropriate national and regional networks as does the Royal Library in The Hague. The serial holdings of the National Library of Austria are included in the Austrian Periodicals Database and the German Zeitschriftendatenbank includes the serials in the Deutsche Bibliothek in Frankfurt. In the United Kingdom the serial holdings of the British Library Document Supply Centre are available on CD-ROM but the only stock accessible through an online network is the English language monograph collection from 1980 which can be accessed through viscount and JANET. Other British Library holdings are not available online. In France there is no access to the holdings of the Bibliothèque Nationale for monographs. The National Szechenyi Library in Budapest has mounted its serial holdings on a database available nationally. The national libraries of most former socialist countries have access to a joint database of foreign periodicals held in their various national libraries but

otherwise national libraries are members of networks only selectively although it is not possible to give a total picture.

In North America some of the holdings of the National Library of Canada are available online through the DOBIS system using UTLAS as a carrier. The Library of Congress also contributes to the national bibliographic database through OCLC. The National Library of Mexico belongs to a network which makes its serial holdings available throughout Mexico.

In both Australia and New Zealand the national libraries belong to the appropriate Bibliographic Network through which other libraries can consult holdings information and transmit requests.

Membership of networks for interlending purposes in other countries and regions is very restricted. The SABINET system in Southern Africa is developing for this purpose and the National Library of Singapore belongs to a network which allows the transmission of interlending requests but those other national libraries which belong to, or operate, networks do not generally use them for interlending purposes.

It is worth noting that some national libraries, by joining such utilities as OCLC make their holdings known internationally as well as nationally and the joint venture between the United Kingdom, Netherlands and France will also enable international networking of interlending requests.

In view of the answers given by some of these libraries to questions about their membership of online networks or automation of their catalogues, it would seem that the word "networks" was interpreted very liberally and that many of these answers relate, in fact, to agreements on subject specialisation rather than using an online network to interrogate holdings records of other libraries and make acquisitions decisions in the light of the information obtained through the search.

The general picture is one of rapid development in those countries where networking is established and of active interest in those countries which are still at the planning state. It is encouraging to note the plans for such developments in countries which are still at the "card catalogue" stage. It seems likely that many countries will jump the gap from non-technological library services to high technology, an example which the island states of the

South Pacific have set in many aspects including satellite transmission and the use of fax.

Although there is considerable use of networking for locating materials and cooperative cataloguing, there appears to be relatively little use of the same facility for cooperative acquisitions policies. Many libraries do have acquisitions profiles which they have developed in conjunction with other major or national libraries in their country (Germany, USA, South Africa, Sweden) but there appear to be little use of the actual technology of networking for this purpose. Again many libraries have their acquisitions programme limited by format so that non-print materials are excluded (in many libraries) or only one form (sound recordings as in the British Library) are included but, again, this is a matter of general management rather than any networking facility.

CHAPTER FOUR

CHANGES IN PUBLISHING PATTERNS

There are several important changes in publishing patterns of which national libraries need to be aware if they are to continue to fulfil their various functions effectively. The development of the computer has had a major impact on publishing for a number of years but it is only with the advent of the desktop computer on the one hand and the production of text online on the other that the real significance for national libraries is beginning to be appreciated. The growth in more conventional forms of non-print publishing should also be looked at in the light of acquisitions policies discussed earlier in this report.

Considerable research into the literature and statistical data available has revealed that there is no comprehensive data available on the size and growth of the audiovisual market in respect of the actual materials with the intellectual content to be used in any non-print format. There is a considerable quantity of data on the number of radios, televisions, record players, computer terminals and the like in many countries but almost nothing on what is actually used on the equipment in the forms of discs, tapes and software. This is confirmed by a major study undertaken by the Commission of The European Communities earlier this year. The report states:

"One of the constraints we have to put up with in trying to inventarize [sic] this sector is the lack of data - and the unreliability of what data exists."

(Communication from the Commission to the Council and Parliament on audiovisual policy) COM (90) 78 Final)

It is therefore not surprising that libraries were unable to provide any figures for this part of the questionnaire. The survey carried out in 1983 showed considerable variation in the success of legal deposit comprehensiveness in obtaining copies of everything produced in a country but could not offer any absolute figures on the production of such materials.

Audio and video production

Although no figures have been discovered giving anything like a comprehensive picture of production in these relatively "low technology" areas, production figures for the USA of spoken word recordings indicate that over 45,000 such

recordings are currently available, 6,000 of them new in 1991. Similarly over 120,000 video programmes on 62,000 videotapes are in circulation. [Figures from On Cassette 1991]. It must be remembered that much of this material will be ephemeral in nature or simply re-recordings of previous editions. However, there is an increasing trend in production which should be monitored carefully. On the one hand there is an increasing market for recordings of classic literary works in various countries performed by quality performers which, in themselves, become of cultural importance.

On the other hand there is the beginnings of an industry which produces sound and/or visual recordings of original works, that is, works which have not actually been put into circulation in printed form. Failure to collect such materials will, in the future, impoverish the national collections unless there is either a change in acquisitions policy in many national libraries to include non-print formats in their collections or, at least, statutory agreements with national archives that they will collect and maintain such materials in the place of the national library. In the latter scenario the role of the national library becomes diminished and this should be considered carefully by those responsible for planning national library provision in both meanings of that phrase.

CD-ROM

An increasing amount of material is being produced on CD-ROM, not only bibliographic data, which libraries might be expected to collect as part of their professional activities, but directories and other large information databases. With the reduction in costs and increase in the reliability of the technology the use of CD-ROM for storing and disseminating full text is increasing as well. The ADONIS experiment is one of the most well-known in this field. In this programme the full text, including illustrations, of over 200 biomedical journals is stored on CD-ROM and made available to a number of national and regional centres throughout the world. At present most of these centres are national libraries (for example the Library of Congress, the Central Medical Library in Cologne, the British Library Document Supply Centre and INIST). In the present state of development the text is a parallel to the printed form, conventionally distributed through normal journal subscription channels. A similar system for business journals has been developed by UMI. In the future it may well be the case that original text is programmed directly onto discs and available only in that format. The number of CD-ROM products is growing rapidly. This is indicated by the CD ROM Directory 1990 which contains 1549 CD-ROM products. By no means are all of these bibliographic, in the broadest sense, and include

catalogues of spare parts for cars and other industrial information required in bulk. Nevertheless, as the Directory states

"There has been a considerable growth in the scope of CD-ROM products which now cover subjects ranging from truck parts catalogues, and Public Domain sortware, to bovine history, and erotic art. CD-ROMs are being increasingly used in schools, libraries, businesses, and we can see the emergence of entertainment titles which are now available for home and leisure use. To illustrate the wide range of applications of CD-ROM technology we have also listed some titles that are not commercially available but are purely for internal use within an organisation. The need for a comprehensive, easy-to-use guide has never been greater and this Directory aims to provide contact and background information needed by anyone involved in the industry, or wishing to know more about CD-ROM technology."

The Directory contains over 1,500 CD-ROM products which represents a growth of over 100% from the previous edition in 1988.

Electronic publishing

Electronic publishing is distinguished from CD-ROM publishing as the two methods are substantially different although they can often appear the same to the reader. Electronic publishing is seen as the production and dissemination of text through online systems in the same way as databases are disseminated.

Databases are themselves, of course, a form of electronic publishing and can be considered within the framework of electronic publishing generally.

Electronic publishing is a fast growing industry. The technology has been present for some time to allow this to happen as the majority of commercial publishing in Western Europe and North America is now prepared electronically and the text printed from this using such techniques as Standard General Markup Language (SGML) to produce a properly printed and typographically variable product. It was a comparatively small step to pass from the production and storage of text electronically to the dissemination of the text through online systems.

So far very little text has been made available only in electronic form with the exception of information databases containing statistical or financial information or chemical and other scientific data. Most publishers use their

typesetting procedures to generate an online electronic publication as a by-product from their paper printing and publishing activities. It is therefore difficult to estimate the exact size of the electronic publishing industry as defined in this context and even more difficult to estimate the actual size of the materials published in this way. A recent survey of databases in the European Community described over 50 databases, many of which have no paper equivalent. If the wider area of videotext is included in electronic publishing then the potential worldwide is enormous. In the EC alone there are estimated to be over 5.5m users of various videotext services, the majority of which are available only in electronic formats.

National libraries were asked if electronic publishing was important in their country. This is a subjective question and the answers reflect this but national libraries should be in the best position to judge if electronic publishing is important in their country as they ought to be concerned both at the changing pattern of publishing in relation to paper publishing and also the implications for their role in preserving the national heritage, acting as a national archive and as major disseminators of information. Unfortunately many do not seem to have taken a real interest in this issue so far.

Only four countries said that electronic publishing was important in their country. These were South Korea, USA, Japan and Morocco. This list may appear surprising and needs further investigation. The use of electronic publishing by countries with ideographic scripts is less surprising as this technology allows much greater flexibility and can reduce costs considerably against traditional typesetting methods. Four other countries indicated they considered electronic publishing was just becoming important or would become so in the near future. These were Hungary, Malaysia, United Kingdom (Scotland) and Australia. All other countries considered that it was not important at this stage. Of these eight who felt that electronic publishing is or will become important, all but Hungary and Australia said they do collect such materials if they are available. In all cases it was clear that only a very few such items had been added to stock, whatever that phrase means in this context.

It is clear that electronic publishing is still at a fairly early stage throughout the world but its importance is growing rapidly. Generally the responses to the questionnaires indicated a lack of awareness of the importance of this medium of information dissemination which may produce long-term adverse conditions in the future for national libraries.

Desktop publishing

Desktop publishing is the term used to describe the production of documents using a PC or similar small computer, coupled to a printer, usually with a word-processing package. The technology allows any individual with the appropriate equipment to produce a "publication" simply by sitting down in front of the screen and typing. It differs from electronic publishing fundamentally in that usually a paper copy is produced and it is not usually accessible online although with the introduction of office networking this may no longer be true and it could be available to anyone through the appropriate gateways.

Libraries were asked if desktop publishing was important in their country and, like the question on electronic publishing, this is perceived to be a subjective opinion. Far more countries indicated that desktop publishing is important than said this for electronic publishing. Altogether 18 libraries said that desktop publishing is important in their country and the spread both geographically and in terms of development was much wider than for electronic publishing. In this respect desktop publishing mirrors the use of CD-ROM. In both cases the appropriate technical equipment can stand alone and relies only on a regular power supply and not on telephone and other communications systems. The 18 countries which claimed desktop publishing was important are worth mentioning. They are:-

Australia
Austria
Belize
Botswana
Costa Rica
Israel
Japan
New Zealand
Norway
Singapore
Sri Lanka
Sweden
Switzerland
Turkey
United Kingdom (Scotland)
USA

Yugoslavia (Montenegro)
Yugoslavia (Slovenia)

Clearly the use of desktop publishing is beginning to grow in the developing countries where it offers a new opportunity to publish relevant materials of both scientific and cultural interest and also news and leisure items at a relatively low cost. Only two countries gave figures for production or collection of these materials. Belize estimated that about 30 such items are produced annually and 20 of these are deposited; in Costa Rica the figure was three of each. Israel stated that all printed material were collected and distinctions of this kind are not made. However, this statement ignores some of the basic problems which desktop publishing raises for national libraries and which will be mentioned in the following chapter.

The growth of desktop publishing and the wider availability of various videotext services leads to the prospect of wide-ranging publishing activity well beyond what is currently understood by that term. It will be, indeed may already be, possible to write a text, download appropriate information, tables and graphics from a variety of videotext services, merge these with the original work and create an entirely new work, the ownership, authorship and status of which will be far from clear.

Broadcasting

Although broadcasting is regarded as a rather specialised form of publishing it must be included in any study of the role of a national library if that library is trying to preserve a comprehensive record of the national culture. Increasingly the radio and television carry material which is original and which is not permanently recorded anywhere. Although it is collected by some national sound or film archives this is often very selective and cannot be comprehensive because of costs. The national library plays little part in preserving this material yet it will become more and more important and its loss would be a serious one for any nation. Only Norway seems to have a legal requirement to deposit such materials yet this is a fast growing area of production which needs urgent attention.

CHAPTER FIVE

CHANGES AND CHALLENGES FOR NATIONAL LIBRARIES

This chapter re-examines the basic characteristics and functions of a national library in the light of technological developments and assesses where changes will inevitably occur, where they already have occurred and where they may occur depending on the management, goals and dynamism of the national library.

Basic characteristics

The three basic characteristics of a national library were identified in Chapter 1 as":-

a) funded mostly from public funds;

b) open to the public;

c) act as the major archive of printed material produced within the country or region concerned.

It might be thought that these are so fundamental that nothing should change these characteristics, yet technological developments may well undermine all three of these.

a) Funded mostly from public funds

The national library is usually maintained for the good of the general nation and is therefore funded from the public purse. The changes in technology may influence this situation considerably in several ways.

1. Cost

If a national library is to expand its coverage to include materials in formats other than conventional printed materials then there will be extra costs involved. These costs will include investment in a variety of technical devices for using the materials (for example, a range of video and audio players, different forms of computer, a range of viewing machines for different gauges of film and so on). Such equipment is expensive to buy and requires expert maintenance and

eventual replacement. Obsolescence is a further problem which needs to be faced. Standard equipment is standard for only a limited length of time, after which replacement parts and items become impossible to obtain and expensive to have manufactured specially.

Further costs are incurred in storing non-print items. Storage and conservation of paper is in itself a major problem but many problems are compounded by the chemical instability and unknown characteristics of many of the carriers used for information. Such problems as laser rot are now only just being diagnosed and many carriers are too new for all the problems associated with them to be known. Suitable conditions for storing such materials are expensive and large investments may be needed for small quantities of material.

Although many non-print items actually save on storage space because of their compactness, they often require a disproportionate amount of space for use, placing further pressure on public reading rooms and also increasing demand on staff time for assistance in using the items.

2. Role

It may be that the national library is unable to fulfil its functions in relation to non-print items because of the cost or because these functions are not taken over by the national library at all. An alternative scenario is that the national collection of non-print media is housed in a separate archive, thus creating a second "national library". This alternative national library may be funded by the public purse or, more likely, in conjuction with the producers. The role of the national archive for non-print material in providing an archival collection for the production industries is one which needs further exploration but as it develops this role, as well as its responsibilities to the nation as a whole, then the way in which it is funded may well change from public to being a joint exercise between the commercial and public sectors. This scenario leaves the national library, per se, publicly funded but not fulfilling all the roles that seem appropriate to it.

b) Open to the public

There seems little point in having a national collection of materials designed for the use of the nation if, in general, it is not open to the public. However, technological developments may well influence this in two important and opposing ways.

1. Increased access

The development of electronic means of accessing information increases the capabilities of one central collection to be more widely accessed than previously. Information stored electronically by a national library can be made widely available through telecommunications networks, thus making the information in the collection more widely available, whilst potentially reducing the number of actual readers visiting the national library. In practice this is unlikely to be true since online and other types of access usually serve to provide access to more people rather than satisfy existing needs. In addition, if such services are successful, they heighten awareness of the capabilities of the national library and often increase use of its other services.

Some of these trends may actually move some national libraries to limit access to the library itself to those whose needs cannot be met through other channels such as electronic communications. This may well be an effect of the use of technological developments generally so that the national library becomes more and more a place of last resort rather than either first, or, more convenient resort.

2. Decreased access

A complication which may actually limit access to the national library is the contractual arrangements under which many non-print items are made available. It is increasingly the case that strict limitations on the use of such media are placed by the producers before they will release them for use in libraries. Library users may be restricted either by affiliation, reason for use or even their usual location. Although some of these restrictions may be overcome if legal deposit is enforced such limitations may nevertheless be allowed within that legal framework. Failure to take into account the sensitivity of producers

may cause difficulties in enforcing deposit or even getting such legislation on to the statute book.

c) Act as the major archive of material produced within the country or region concerned

This is the basic characteristic which is most likely to be affected by technological developments. National libraries will all have to face the challenge of either expanding their collection policy to include non-print items or excluding them. The result of the latter could be that some other body may take up this aspect of the national collection or seeing the national collection of (especially) electronic materials built up by the commercial sector for commercial purposes rather than the general public good. Failure to take up the challenge of these materials may well lead, not only to a lack of overall growth in the national collection but actually to a decline in relative terms as more materials are published only in non-paper formats. The role of the national library could then become little more than a residual one for minority or highly specialised materials on the one hand or the popular press on the other.

The particular problems faced by national libraries in relation to different types of material and different forms of publication are dealt with below.

Functions performed

In the light of what has been said about technological develpments, the functions which may be performed by a national library are examined in detail. Clearly some functions will be influenced more than others and more in some national libraries than others. This section does not aim to look at different national libraries as such but rather the functions which might be performed.

a) A central collection of materials produced within or about the country or region in which the national library is situated

The general problems in maintaining this function have been examined already. However, there are a range of specific difficulties which need to be examined in detail to determine if, and how, this function can be performed by the national library.

i) Acquiring material for the collection

Acquisition can be achieved using legal deposit, voluntary deposit or purchase. All three of these can be found in national libraries for printed materials and the diversity is even greater for non-print materials. Each has its problems in this area.

In the case of legal deposit, specific legislation will be necessary to ensure this is possible and there are the usual difficulties of subsequent enforcement. The problems of legal deposit are examined in more detail under that heading. Voluntary deposit is also a viable alternative and is practised in many countries. It has the disadvantage that it is unenforceable (so is legal deposit in most countries but at least the mechanism for doing so is technically available). It relies on goodwill and good working relationships between the production industry and the national library.

The third possibility is purchase. This is in some ways the most satisfactory as most producers will respond to a request to supply in exchange for money. This may be at the full market rate or at a previously agreed reduced rate.

In the case of deposit, voluntary or legal, there is the recurring problem of being sure that all material has been deposited. Even for long-established programmes for legal deposit or printed materials there are always items which are missed and this is more likely with a production industry which is much more fragmented than the print-on-paper industry and far less aware of the existence and importance of national collections.

In the case of a purchasing programme there is the difficulty of knowing what has been produced (poor "bibliographic" control) or of obtaining copies before they go out of "print". Many non-print items are produced in very short runs or copied only on demand.

All these methods can be applied to conventional carriers such as disc (audio, CD-ROM or video), tape (audio, video, computer) and any other medium which carries a finite fixed quantity of data. However for electronically produced and stored text there are far more complex issues. Such materials may not be available for purchase, only for

access. They may be in such a fluid state that legal or voluntary deposit is hardly meaningful. If deposit is achieved there are further difficulties about ownership and access.

ii) Storing materials

There are significant problems for storage of different kinds of media. A basic difficulty is the special atmospheric conditions needed for different carriers. Whereas with a paper collection basic conditions can be made roughly the same for the total collection, for other media a variety of problems arise including humidity, temperature, light and direct/indirect heat. These are not the same for all carriers, resulting in a need for a variety of storage facilities depending on the medium. The different types of carrier used within each medium also creates problems. For sound recordings such variety as wax cylinders, vinyl discs, tapes (of different standards), and compact discs all require different equipment, much of which rapidly becomes obsolete and difficult to replace.

In the case of film and video there are problems of different standards and additionally more acute problems of storage relating to which medium should be used for storage as there are strong arguments that the viewing of a full screen film is part of the experience of that work and cannot be reproduced by watching a video version. Therefore the whole question of in which medium to store becomes a live issue.

In the case of materials in electronic media storage presents quite different problems. In the case of CD-ROM and similar carriers these difficulties are approximately the same as for audio/video materials but for electronically-published materials online there are complex problems of whether the actual text is "stored" or simply accessed. If it is stored then quite large computer facilities will be needed with appropriate backup facilities to prevent loss of corruption of the text. If reliance is placed on access to a remotely-stored quantitiy of text then this raises further questions of responsibility for storing a final version of any text, who shall have access and bear any costs.

iii) Retrieval and use

There are practical difficulties in terms of retrieval. Firstly the creation of suitable records to know what is held is itself a difficult problem as there are conflicting and incompatible cataloguing records used, even more so that for monographs and serials, despite the appearance of ISBD (NBM). This applies to nearly all formats of non-print media.

Having identified an item in the collection, retrieval and use pose specific further problems which may limit availability to users. Apart from the difficulties of specific items of equipment (a recurring theme) there are further problems in retrieving specific items stored on large discs or lengths of film, a difficulty already well-known in microform collections. Special cataloguing and identification arrangements are necessary, requiring further staff time and expertise in recording and retrieving the material needed.

In the case of documents stored online this problem is much easier as the fast and reliable methods of searching in this medium actually make it an ideal medium for reader use. However, further problems then arise if paper copies are required as this may not be possible for copyright reasons.

All these problems are faced by any collection of non-print materials but additional issues must be faced by national libraries in the light of technological development. The question is bound to be raised as to whether one central national collection is now required in the light of the capabilities of online networking to provide a total record of a nation's library collections. There may be an argument for distributing the responsibility for collection building and maintenance amongst a number of designated libraries according to location, type or subject strength. An electronic network would provide the mechanism to ensure that a total national archive was maintained and such issues as "retention of last copies" could be dealt with through a centralised management of a centralised collection. An alternative scenario which electronic technology makes quite possible is that the national library would cease to collect particular types of material or material produced in particular localities, so that a national archive could be set up for film or sound and its records linked to the national library

for awareness purposes although the material would be stored elsewhere in specialist conditions with expert staff. In the case of geographical collections it might be possible to relieve the national library of the responsibility of collecting locally-produced materials and delegate this to a regional centre such as a major public library. This would actually be beneficial as the regional library is more likely to be aware of locally-produced material than the national library as such materials often escape the legal deposit net. This would, in turn, actually improve the total national collection.

b) Maintain a comprehensive collection of foreign publications

The problems of maintaining a comprehensive national collection of non-print items are compounded when compared with carrying this out for the national output. Identification, acquisition and use would be particularly difficult issues because of differing standards which are even worse than for national products.

In the case of libraries in developing countries or countries with limited national output, the advent of electronically-published documents can be of considerable benefit. The use of CD-ROM for publishing high-use scientific journals and large reference works enables many libraries to build much larger and more comprehensive collections of foreign materials than was possible formerly. The ease of acquisition, often coupled with regular updates, makes this type of technology particularly attractive provided that funds are available for the initial start-up equipment.

Although it is generally thought that libraries cannot build comprehensive foreign collections, it must be remembered that many libraries need to build foreign collections in order to offer a meaningful service to readers. National output of documents may well suffice for historical and local needs but for scientific and technical research it is usually the case that foreign materials are essential, even in those countries which are major producers of intellectual property.

The use of electronic networking can make a major contribution here, especially when foreign materials are not heavily used. An efficient network can enable a comprehensive collection development programme to be developed, avoiding duplication and ensuring adequate coverage. This

enables a good selection of foreign materials to be acquired in a cost-effective manner and yet to the benefit of the nation as a whole.

c) Provide national leadership in library and information affairs

National leadership is a matter of quality and motivation rather than technology! However, if a national library takes a pro-active role in developing technological advances it is likely that this will establish that national library in this role for a long time. The number of institutions involved in developing library technology in any one country is limited and there is the opportunity for the national library to show the way in this field. Failure to grasp this opportunity, however, can lead to the national library becoming a backwater technologically and being led by others with long-term damaging effects on its reputation in the library and information community.

d) Be the hub of librarianship and the prime mover in library developments

The national library has the opportunity to pay more than a figurative role as the "hub" of library development. By taking the lead in developing networking and online data systems the national library can literally be at the centre of all developments in this area. By facing the challenge the national library can play a role which is unassailable. Once again, failure to do so will enable others to usurp this role permanently.

e) Provide a national information system to facilitate economic and social development both national and personal levels

The use of online databases, comprehensive reference materials, perhaps stored on CD-ROM and the creation of electronically-stored records of its own holdings all enable the national library to provide a wide range of information facilities quite unachievable without the exploitation of technological developments. The use of these facilities can provide any nation with a wide range of information and documentary sources to exploit for both national and personal development. The challenge for national libraries is one of success. Increased use of such facilities inevitably creates additional demand for more services. Similarly such services often generate demands for documents which the national library (or indeed any library in the country) does not hold. The stimulation of document delivery services through increased use of electronic media is an important element to consider when introducing such facilities.

The use of teletext to provide a wide range of information services is also a role which the national library can adopt, often with indirect benefits such as heightened public awareness of the national library's role and services.

f) Receive materials through legal deposit legislation

This poses a number of problems, some of which have been touched on earlier. Legal deposit of non-print material is a particularly difficult exercise. Firstly, the nature of the production industry is fragmented in most countries so that it is very difficult to enforce any legislation. This is less true in small countries or countries with limited publishing activities but in the major industrialised nations it is virtually impossible to enforce.

There are problems with identification of materials that have been published because of the lack of bibliographic control. This is a problem to which there is no easy solution. In many countries the bibliographic record is created by the national library from the materials received. Therefore the national bibliography is only as good as the legal deposit arrangements. As the national library needs to know what has been published in order to ensure that deposit takes place after which the item is included in the national bibliography this is a circular problem. The only answers are a combination of publicity and education for the production industries and expert staff with a good network of contacts.

There are problems with legal deposit when defining what is meant by published. If by published is meant "produced in sufficient quantities to meet the demands of the public in advance of publication" then many non-print items would fail to qualify to be included in a legal deposit scheme. A large number of audio and video materials are produced only in response to requests from purchasers so that there would be no obligation to deposit unless some other definition were agreed. Non-print items can be much more expensive to produce than printed materials. This is less true of magnetic tape and even vinyl disc than it is of CDs, and certainly CD-ROM and its variants. In the case of videos production can be quite cheap but a major feature-length film can cost a very considerable amount of money even to make a copy.

Problems are also experienced when deciding at what point in the production line an item shall be deposited. In the case of printed materials they are all made from plates or through electronic signals in a computer, so that all copies are much the same in quality. This is not true for some forms of sound recordings and films, for example, where there is a master from which others are subsequently processed. Should the original master be deposited or just a copy? If a copy is acceptable, should it be one of the first?

A related problem is the format in which deposit takes place. For example, is deposit meant to preserve the form in which the document was originally released or just the content? If the content is the main concern then a video from a film will suffice but this is strongly disputed by many film experts. Similarly, if a sound recording is released simultaneously as a cassette, a CD and a disc, should all three be deposited or just one?

In the case of electronically stored text the problems are much more complex. What does deposit mean in terms of material which is written, edited, stored and distributed entirely in electronic form? The definition of "published" in this context needs to be radically re-examined as online systems are not generally available to everyone and anyone but only to those who have subscribed to them or have obtained access through a subscriber. The problems raised by desk-top publication which is virtually publication on demand, is hardly liable to legal deposit but when authors voluntarily deposit copies of their self-generated works, how does a library know whether it is published or not? Much "vanity" publishing of this sort can be achieved using a PC and even ISBNs can be allocated to such documents without their true nature being appreciated. Version and edition are also concepts which need rethinking. Version has already been mentioned in the context of film and video but this has further implications in computer terms in relation to language. This is also a problem for computer software packages. Would deposit in any one computer language be enough or should all possible languages be deposited.

Edition is perhaps the most difficult concept to deal with in electronic publishing. The technology allows online editing of any text, either by the publisher's editor or by the author himself or even by another person in appropriate circumstances. A paper containing statistical data, for example, can be updated at any time with the conclusions drawn being amended at the same time in the light of new figures available. At what point a new

edition is created and at what point such an edition should be deposited are questions which are still being discussed in library and legal circles.

Further complications arise when electronically stored text is manipulated and perhaps merged with other texts. The nature of the newly created document may be such that it is itself a new document appropriate for deposit but the actual ownership of such documents is far from clear and could be disputed by several contributors to any one document.

It is important for any national library to know who owns the rights in the documents in its possession but this is especially true when electronically stored text is concerned as it is far more vulnerable to copying, changes and re-use. National libraries which want to take a pro-active role in information generation cannot take up this challenge unless they know who owns the materials they wish to exploit.

g) Act as the national archive for non-published materials

In a number of countries the national library is responsible primarily for published material and the national archive takes on responsibility for unpublished documents although their roles are not always to distinguish. Whichever model is chosen for a given country the impact on the collection of non-published documents of technological developments will be considerable.

The primary change will be brought about by the way authors prepare their papers, whether intended for publication or not. In the case of the author who intends to publish there will be, indeed there already has been, a change from using handwritten notes to the typewriter and from the typewriter to the word processor. With the widespread use of PCs to prepare documents at home the writing and re-writing of a text is made much easier without the need to rewrite whole pages or even chapters. The intermediate changes can be made as many times as needed and only the final version saved on disk and transmitted to the publisher. This transmission often takes place by sending the publisher the disk anyway so that no actual physical paper changes hands. The implication for literary archives is fundamental. There will be no further opportunity to look at drafts and re-drafts and analyse what and how the author changed the text. There will be no unpublished material to collect from authors who use this type of

preparation and it is a method which is growing and gaining popularity all the time.

This is equally true of business, commercial and governmental documents. The use of paper for storing many items is being abandoned in favour of saving on disk. Increasingly documents are transmitted electronically and may never actually exist in paper format. Computerisation also allows much more careful monitoring of use and access for documents which are sensitive in content. It may also be more easy to destroy important documents in the future which will result in archival collections being unable to construct a comprehensive collection of relevant documents. Unless national libraries (and archives) develop a wide-ranging programme of collecting materials in electronic form and collecting them at at early stage in their production, much of this material will be lost for ever.

In the case of non-print items such as sound and film, the problems of storing such materials are similar to those for published items in these categories. The acquisition of unpublished items presents the same problems as for unpublished paper documents but there are again problems in deciding what is and what is not published. There are also new problems in quantity. The technology of the tape recorder and video recorder, which are far from new, have developed to a point where any keen amateur can produce high quality recordings of considerable cultural and historical value. This growth in, and ease of, use of such equipment means that there is considerably more valuable material existing which should be collected. Identifying and obtaining such items is as difficult as for any other unpublished material but is becoming increasingly vital for the complete recording of a nation's heritage and culture.

h) Create the national bibliographic record

The creation of the national bibliographic record is not the responsibility of all national libraries but is certainly a role which should generally be attributed to them. The problems of creating such a national record for non-print material are extensive.

1. What to include

Non-print materials offer particular challenges to compilers of national bibliographic records. The question of what is meant by the

term published is crucial as generally speaking most national bibliographies do not include unpublished materials although some certainly extend the definition of published to documents which others would not consider eligible, usually to make the bibliography as complete as possible for a country with limited publishing output. The question of defining published has been discussed under "legal deposit" and the same difficulties apply here as for that issue.

2. Creating the record

Creating a record of non-print material is in itself a difficult exercise. For many new media the rules are general rather than specific and for mixed-media publications there are even more complex rules to apply. Nevertheless these problems are essentially the same as for any library acquiring such items although the national bibliographic record is usually seen as a national standard from which other libraries derive many of their records. It is therefore incumbent upon the national library to create and maintain as high a cataloguing standard in this area as possible. As many libraries have only limited non-print collections they may well rely on the national bibliographic record more heavily than for conventional printed and published documents. Non-print material offers particular difficulties when applying classification systems to them as they have the capability of being much more faceted in their content and physically take much longer to analyse for content than a printed document. National bibliographic records usually provide some subject and content indicators which enable others to use them as selection tools as well as mere historical records.

3. Available data

The content of most national bibliographic records includes information about publication and sometimes distribution. If such information is not provided then the record becomes purely historical and ceases to fulfil a central role in developing the national acquisitions programme. Data concerning source of publications or distribution is often difficult to trace for non-print items, thus reducing the value of the national bibliographic record.

As in the case of legal deposit, the nature of the production industries makes it difficult to obtain information about materials to include them in a bibliographic record.

4. Currency

Many creators of national bibliographic records are criticised for the lack of currency of their records. Several months can elapse between an item being deposited and the record being made available. In some countries this gap can be several years in length. Even if the catalogue of the national library itself is taken as the national bibliographic record, although not nationally available for general consultation, there can be long delays in creating even this record and, a deposit often occurs several months after first publication, the gap between actual first availability and the national bibliographic record often becomes unacceptably long. This is very inconvenient for printed materials but most non-print items have fairly limited lifespans and become unavailable very quickly. Thus the use of the national bibliographic record as an acquisitions tool is severely diminished by long delays before making it available. It may be complete and accurate as a historical record but the items recorded may long since have ceased to be in existence.

5. Records not materials

There is a tendency to create catalogue records from publishers' data rather than from the material itself. To do this for non-print items can be very misleading and lead to a national bibliographic record based on expectations rather than reality. Many items are announced as available but may not be so for some time, if at all, and often not in the way originally announced by the production company. Failure to base a national bibliographic record on actual materials can lead to erroneous records giving a false picture of the national production.

6. Electronic publishing

The impact of electronic publishing on cataloguing generally is considerable. There are no real standards as yet to deal with this phenomenon. Bibliographic description is still being developed and the elements to be included are quite different from materials published as

"stand alone" items. Material published in this way may have a limited availability, perhaps only to the national library and a few well-chosen libraries or those which can afford a subscription. To include such items in a national bibliographic record may be misleading as they are not generally available within the nation as a whole. There is the further complication of the problem, already mentioned, of which edition to record and in what format. When is a new edition created and through whom is it available? Furthermore, there is a basic assumption in the creation of a bibliography that the items included in it exist and, subject to normal deterioration, will continue to exist somewhere. With electronic publishing the safeguarding of the very existence of the electronically-stored text is a matter of concern as ultimately it may rest with the publisher not the national library. Therefore to prepare a national bibliography of such items is in itself misleading unless the national library develops a system of ensuring the preservation of at least one such 'copy' of every item made available to it. All these issues are tending to undermine the role of a national bibliographic record.

i) Make its collections nationally available

Access to national collections is essential if they are to fulfil a truly national role. The problems of access to collections by individual researchers visiting the national library have already been dealt with. A further problem is remote access by those who cannot, for whatever reason, visit the national library to consult the materials they require.

The obvious solution is an interlibrary loans service which would make materials in the national collection available, at least for consultation within other libraries. This is a function which many national libraries fail to fulfil, even partially, for printed materials. Even when there is a willingness to make materials available there are difficulties in the case of non-print materials.

Firstly there is the fear, often more imagined than real, of damage of material in transit resulting in their being rendered useless for mechanical reasons. Borrowing libraries (or individuals) must have suitable equipment for playing the materials borrowed. (This reflects the necessity of structuring the cataloguing records adequately to indicate the type of equipment needed not just the general format.) Unlike many printed items,

non-print items cannot be easily transmitted otherwise than actually sending the physical document. Photocopies instead of originals is not a readily available alternative. Some materials may lend themselves to copying but this can pose copyright problems.

The production of materials in electronic form may make national availability better or worse. From a technical viewpoint electronic publishing is one of the best methods for availability as a centrally stored text can, in theory, be accessed anywhere provided the necessary telecommunications and equipment are in place. However, the storage of such text at the national library may well be done under very strict conditions, including a prohibition against networking the text or even transmitting it in response to a specific request. There will probably be restrictions on downloading and transferring the text to paper so that the national library will not be able to fulfil its role in this respect.

On the other hand, technological developments allow the national library to fulfil aspects of this role much more effectively than previously. Improvements in telecommunications enable requests to be sent to the national library in seconds although there are still problems with sending text as quickly. Group III fax is adequate for ordinary printed materials but the development of Group IV will make the transmission of documents with illustrations and high-resolution data and figures much more acceptable. The growth of networking and online catalogues enables a library in any part of the country to find what the national library has added to its stock almost as soon as the addition has been made.

j) Provide the focus for an international document supply system

There is an increasing tendency to move away from providing a central focus from which all international interlibrary loans will be satisfied towards a focal point which will coordinate international interlending on behalf of libraries within each country. This trend is already noticeable in those countries which have fairly well developed online catalogues or cooperative databases. Such online access to holdings enables libraries from outside any country to find out what the larger libraries, at least, hold and apply direct to them for loans and photocopies. Thus international interlibrary loan requests may be dispersed amongst many different libraries rather than concentrated on one single library (the national library). However, this

under the Universal Availability of Publications (UAP) programme under which every country is ultimately responsible for making its own publications available to any country when they are requested.

This central role should still be exercised by the national library at least as a source of last resort. In the case of materials in non-print formats international interlending is particularly difficult because of physical problems with transmitting documents and the fears of loss or damage made even worse by the vagaries of international postal systems. The difficulties of compatibility of formats becomes considerably worse when materials are transferred from one country to another and there can be legal problems with customs and copyright, such as supposed illegal importation and subsequently infringement. Where electronically published and stored text is concerned there are even more complex problems with international transmission of such texts as this can infringe any number of rights including copyright, distribution rights, exclusive rights to publish and contracts. In addition the concept of a national library transmitting electronic text from its own storage when this is probably available online through the original publisher requires questions to be answered about the necessity of such an operation. However, this may become a real necessity at the point where the text is regarded as obsolete by the publisher and no longer stored by the publishing house itself. In this case the national library may become the only point from which "copies" can be provided.

k) Act as a national resource for non-printed materials

Many of the problems in fulfilling this role have been discussed already. As non-printed materials become more important in recording the national cultural heritage the role of the national library must increase in this respect or else the role will be lost to some other institutions, as has already happened in several countries, and this results in the fragmentation of the total national record. The financial and legal obstacles to achieving this role are considerable, as are the basic physical difficulties, but the challenge is one which national libraries must face and which is not being faced in as many countries as it ought to be.

l) Provide a national referral service

The development of online databases and automated networks offers the

service. Basically a referral service is simply a sophisticated mailbox facility through which the national library receives enquiries, processes them professionally for content and level and passes them onto an expert centre, either directly or by giving the enquirer the necessary information. The whole operation can be completed either via telephone and online or entirely online if preferred. Given the national library ought to have a unique set of reference works, directories and guides, it ought to be possible to develop such a database and referral expertise quite quickly, especially in smaller countries with limited resources or fairly well defined activities. An interesting feature in the development of referral sources is that, whether the national library has failed to fulfil this role adequately, it is being filled increasingly by national or large commercial broadcasting companies whose urgent need for such referral services has obliged them to develop considerable banks of data to deal with these requirements and they are in some cases willing to make this information available to the general public.

The referral role of the national union catalogue is a specialised form of referral service which has been dealt with separately.

m) Undertake to conserve the national printed heritage

Conservation of documents and their contents is a major issue internationally and is certainly seen as the responsibility of the national library, especially where documents are in its keeping. In this area there are several important ways in which technological development will (or already has) affected conservation in all libraries, not just national ones.

The conservation of physical documents is a specialised area and one which does not really concern this report in depth. Suffice it to say that advances in technological development have enabled scientists to develop many techniques for the de-acidification of paper and restoration of bindings which, although often expensive, enable national libraries to conserve the national heritage as recorded in paper form.

The conservation of non-print material is a much more complex issue as the carriers of the information are very different both from paper and from each other. The chemical composition of vinyl discs and cassette tapes are

conservationist although the preservation of the content of many sound recordings has been made possible by recent developments in digitisation which can be used off the virtual eradication of many of the imperfections of the original recordings. However, the problems facing film are often of a different nature and concern the instability of nitrates and the deterioration of cellulose. Techniques for preserving the content of films have also been developed but there are major disagreements between experts as to whether the same experience can be achieved when watching a good reproduction as when seeing the original, even in an inferior quality. These are aesthetic arguments which national libraries must consider in the same way as they do displaying original manuscripts or good reproductions.

The preservation of electronic documents and computer software are less to do with chemistry than with operation of computers themselves. Although at present it is possible to run documents on most major computing languages, presumably the time will come when some of these will no longer be usable without the reassembly of suitable software/hardware which has become obsolete.

On the other hand, the development of such techniques as OCR enables high quantities of text to be preserved and stored indefinitely by a fairly simple electronic process. This does not, however, conserve the actual physical document, only the content of the documents. Once again this leads to major controversy. However, it does enable the national library to maintain a comprehensive collection of documents which might otherwise to totally lost to the national heritage.

n) Provide a central coordinating point for research in library and information science

The role of the national library in promoting and carrying out research and development in librarianship has already been studied several times. However, the growth of technological development makes it essential that the national library develops its own awareness of the capabilities of such technology and also establishes its role as a leader in the field, either by carrying out this research within its own capabilities or producing the funding and encouragement for others to develop such research. Technological developments move fast and libraries are often affected by developments areas which have little or nothing to do with libraries as

such. In order to ensure that any nation is exploiting such developments to the full the national library should play a leading role in R&D.

o) Provide a national service for the handicapped

The provision of services to the handicapped is a growing area and technology is enabling many who could not previously use the printed word to do so in ways previously not thought possible.

Furthermore, the integration of those with a handicap with the able-bodied means that many library materials must be made available to all and the needs of particular groups of people should not be segregated. In turn this means that such material as sound recordings become important in themselves rather than being just another format of a printed text. The audio book has grown in importance in all types of library because of the convenience of listening rather than reading for the general public. This means that many books are now available to the visually-handicapped for the first time. The development of reading machines which convert standard text into audiosignals also means that many books will be in demand where they have been useless before. The same is true to a more limited extent for video productions with subtitles for the hard of hearing. The national library's ability to respond to these changes in demand will determine whether or not it can fulfil a role for those with handicap or whether this role will be abrogated to national agencies which specialise in the needs of those with handicap.

Recent developments in reading technology for newspapers has already confirmed the need and national libraries are beginning to respond.

Although this report examines the role of the national library in the new information environment, other factors will necessarily impinge on the fulfilment of that role, however defined. Technological developments are not cheap to use and economic development is essential if national libraries are to have the funds necessary to provide the services required and stimulate that growth still further. The increasing tendency in the latter half of the 20th century for nationalism to require its own expression may place national libraries under considerable strains both for collection building and other services. Fragmentation of existing national libraries could lead to diminished funds and fewer qualified staff to implement the changes necessary for growth, or even survival. This is typified by the

present situation in Belgium where there are moves to establish a separate French speaking national library, leaving the existing national library essentially for the Flemish speaking populace. Fragmentation may also lead to more limited collections of foreign materials unless adequate funding is provided.

CHAPTER SIX

HOW NATIONAL LIBRARIES SHOULD RESPOND TO THE NEW INFORMATION ENVIRONMENT

National libraries throughout the world are facing a time of radical change. This change will not come at the same time to all parts of the world nor will it come at the same rate or necessarily in exactly the same forms but change is coming, indeed has already come, and will continue its inevitable progress through the bibliotecal world just as through every other part of human life.

This chapter looks once again at the various characteristics and functions of national libraries and makes some comment on how the new information environment will impact on these and includes some recommendations as to how national libraries might react to these changes.

The basic characteristics of national libraries will themselves be subject to considerable changes in the next decade as the information environment changes.

a) Funded mostly from public funds

One of the changes in the information environment with which national libraries must grapple is the worldwide emphasis on the willingness of many information users to pay for their information and the requirement by many information providers that they should be paid. As the climate changes so that more and more information is collected and manipulated by the private sector so this change in emphasis will become more and more obvious. National libraries will be able to operate effective information services only if they are prepared to make charges to their users or else absorb such charges in very high operational costs and effectively subsidise the industrial and academic researcher. The outcome of this may well be that national libraries discover ways in which they can too exploit their collections and services by offering services in the marketplace and so enhancing their own revenues.

Before taking such steps any national library should review its own accounting systems and those of the government department which controls its finances. Many countries still operate a regime whereby government departments, or institutions sponsored by government, cannot retain revenue

incentive for improving services or developing new ones. National libraries should try to ensure appropriate accounting methods for the greatest benefit of their services.

b) Open to the public

If a collection is not generally accessible then there is a limited value in its existence. With the growth in networking and online electronic messaging there may be less need for national libraries to open their doors physically to as many people as in the past but this must be compensated by adequate remote access to appropriate parts of their collections. In the same way access should be made easier through interlibrary loan procedures and remote document delivery systems. The changes in attitude to travel for research purposes make this even more important as new technologies are tending towards an era where travel for such purposes is becoming less popular. The growth of networks will enable national libraries to offer wider access and availability to readers without limiting public use of their collections; rather they will improve this.

National libraries should ensure that their collections remain as widely available as possible for consultation either on site or through electronic means and interlibrary loan and copying networks.

c) Act as the major archive of material produced within the country or region concerned

This is the function which is most likely to change and change radically. With the decrease in budgets worldwide for library purposes, the growth in publishing throughout the world and the development of electronic publishing, it will become virtually impossible for any national library to remain, or become, the major national archive of printed or published material within its own country or region. An associated question which must also be addressed is whether there is a need for one library to perform this function or whether it can be carried out more effectively by a decentralised policy for which the national library assumes responsibiity but which requires those participating libraries to co-operate in the whole area of fulfilling those roles of the national library corporately which have previously been fulfilled singly by that one national library. The introduction of online catalogues, networking and resource-sharing should ensure that a comprehensive national archive is maintained but not in one

place or on one site. The development of electronic messaging and telefacsimile facilities should ensure that a reader in one location is not unduly inconvenienced by the fact that some materials required are stored in other libraries in different locations.

National libraries should examine their acquisitions and retention policies carefully in the light of the current state and future development of libraries generally in their country or region to determine how far they still need to provide one central collection or whether this function can be performed effectively by co-operation between the national library and other major libraries willing to take the necessary responsibility for providing corporately the national archive of material produced within that country.

Examining the basis characteristics of a national library will inevitably lead those responsible to look closely at the functions performed by national libraries and evaluate these afresh in the light of the new information environment in which they are required to operate.

Once again the basic functions will be examined to see what changes may occur and what questions national libraries should ask in the light of such changes.

a) A central collection of materials produced within or about the country or region in which the national library is situated

This has already been discussed in broad outline under the third characteristic of a national library. However, the point must be stressed that one central collection may no longer be appropriate even in fairly small and compact countries. Generally speaking, national libraries duplicate in large measure the materials held by other libraries in their country, particularly when the production of that particular country is examined. The role of the national library is often to provide a comprehensive storehouse to avoid the loss of the final copy of any document. Many documents are held in a multiplicity of libraries but eventually become obsolete, unwanted or unusable and are discarded, leaving the national library as the library of last resort, holding the final copy. The collection, storage and preservation of the national output need not be the role of the national library as such. These functions can be performed adequately and often more effectively by other libraries which have a specialised interest in particular subjects or areas. They are just as likely to collect, maintain and preserve collections in their particular

areas of interest as the national library itself. The role of the national library in this context is to co-ordinate such activity in a planned programme to ensure acquisition, record-creation, access and retention are properly carried out to create a truly national archive. Such a model is being explored in Australia and in the United Kingdom where the British Library, acting as the national library for the whole of the United Kingdom, nevertheless has agreed with the National Library of Wales that material in Welsh will be collected by that library rather than the National Library (ie the British Library) itself.

Much of this can be facilitated by the use of networking to check acquisitions and holdings activities and also provide locations for readers and retention of last copy policy.

National libraries need to take a radical look at their collection building activities and see what role there is for co-operating with others in this area and adopting a planning and co-ordinating role rather than a collecting role. The use of electronic networks and online catalogues should be seen as a basic tool in developing such policies in the future. Where such technology is not yet available there is still a case for examining the current practices and relationships with other libraries where appropriate.

b) Maintain a comprehensive collection of foreign publications

As publications grow in volume throughout the world there is no hope of any one national library maintaining a comprehensive collection of materials produced outside its own borders. Nor, indeed, should there be any need for this to be done. Acquisition should reflect demand, whether actual or potential, rather than an ideal of having virtually everything available instantly. National libraries need to look again at their foreign acquisitions programmes and match these more closely with the needs of their users. With the growing facilities for international interlibrary loan and document supply there should be no need for any one national library to maintain comprehensive foreign collections. The use of such utilities as OCLC and the UK-French-Dutch initiatives on international union catalogues and interlibrary loan are increasing facilities to trace required documents and make national self-reliance a thing of the past.

National libraries should re-examine their foreign acquisitions policy in the light of international co-operation to see what changes should be made to make this more efficient and cost-effective.

c) Provide national leadership in library and information affairs

The information world is a rapidly growing one in which technological developments, economic factors and political change all play a vital role. The new information environment in which national libraries have to work raises all kinds of challenges in these areas. If national libraries are to provide leadership in the library and information world they must ensure that they have the staff and expertise to take this lead.

National libraries should examine their staffing programmes, professional requirements and their policy towards other libraries and librarians to determine how far they can, or should, play a leading role. Failure to take this initiative will leave it to be taken up by technicians, accountants and politicians.

d) Be the hub of librarianship and the prime mover in library developments

As in the case of c) this depends on the capabilities of those who run and staff the national library. They must not only understand and provide leadership in new developments, they need to show that the national library is central to such changes and that it does implement changes where possible itself. In addition the national library needs to develop its role so that it is seen as so essential to any major library activity that to develop any system or programme without it would be unthinkable.

National libraries should examine their attitude to change and development to ensure that they are at the forefront of such change and so deeply involved in it that their role is at all times essential. The provision of such facilities as union catalogues, network co-ordination, training and education and research are all essential to this role in an age when change is rapid and others are equally anxious to occupy the centre stage.

e) Provide a national information system to facilitate economic and social development at both national and personal levels

National libraries have long been involved in the provision of documents containing information. In the new information age the provision of documents, per se is becoming less and less important. What is increasingly required is information whether in the form of articles or monographs, statistical tables, newspaper articles, news bulletins whether on paper or electronic form. As the growth of information databases, both bibliographic and numeric, continues national libraries will need to examine their role as information providers. It will no longer be adequate to provide bibliographic references, or even the documents to which they refer, and there is already a need to offer services which include non-bibliographic data, financial and economic information and company and business data ready manipulated by the supplier to form an information package. Perhaps it would be better to look at the role of the national library as a provider of knowledge - knowledge being the application of information rather than providing that information in a raw state. Such developments are beginning in the United Kingdom, where the British Library Science Reference and Information Services already offers a range of business information services, and in New Zealand where the National Library has similar services for Science and Technology.

National libraries must examine their roles as information providers rather than being passive storehouses for those who may care to use them. Although many proactive information roles are seen as primarily relevant to scientific, technical and business interests, there is also a growing need for the social scientist and even humanist to receive data in a pre-digested format. The new information environment is one in which the "end-user" expects to manipulate materials less and less and to receive information in a form ready to use. National libraries need to consider whether they will fulfil this role, at least in part, or allow it to be offered entirely by others.

f) Receive materials through legal deposit legislation.

Legal deposit is one way to ensure a comprehensive, although not total, archival collection of the national output. The problem with legal deposit is that it is not discriminating and most laws provide for national libraries to receive vast quantities of materials, many of which are not really required for present or future needs. Much legal deposit law deals only with paper or similar publishing and makes little attempt to deal with other media such as sound recordings, films and videos. There is virtually

no legal deposit for computer software or broadcast material. In addition the problems posed by electronic publishing in this area are very considerable. Some legal deposit legislation requires deposit of copies in several libraries throughout a particular country. The growth of networking and other technological developments could render the deposit of multiple copies unnecessary as outlined in a) above. Legal deposit may ensure that a national library (or other types of library) receive many materials but not necessarily all those they require to fulfil their functions.

The role and functions of legal deposit legislation should be overhauled in each country. As national libraries are usually the receptors of material on legal deposit they are in a good position to influence governments in this area. Legal deposit should be re-examined in several areas. Firstly, comprehensiveness. Legislation should enable the national library to receive those publications which it really needs to create a record of the national culture. At the same time steps could be taken to exclude certain unwanted materials from the legislation to reduce the burden on national libraries of receiving and storing material not really required. Alternatively the law should be amended to allow the national library to be more selective in what it receives or what it retains. Secondly, the law may need amending for its scope. In a multimedia environment the collection of material on a wide range of carriers is essential to the maintenance of an archive of national significance. Films, videos, sound recordings and broadcasts should all be considered and the problems of electronic publishing addressed as and when this medium becomes significant in any country. Thirdly, the law needs examining to see which libraries or institutions are designated to receive copies. If a decentralised national collection is to be a model then the law must reflect this in the way the depositing of copies is organised and the national library should play a major role in determining this in the light of other policies for collection rationalisation.

g) Act as the national archive for non-published materials

In the new information environment the whole question of what is meant by "published" needs to be re-thought. The development of desktop publishing and electronic publishing in particular both have considerable significance for the term "published", a problem already being grappled with by those responsible for sound recordings and videos where the growth of the home recorder and the skill of the amateur make it difficult to determine what is

and is not published. In some countries the collection of much unpublished material is the responsibility of the National Archive rather than the national library with the result that collections are often spread over several location without any co-ordination.

National libraries and archives should work more closely together, as in Canada where they share a building and in the United Kingdom where the British Library and the National Film Archive have concluded a co-operative programme and the National Sound Archive is an integral part of the British Library. National libraries also need to address in professional and legal terms the concept of "published" to determine their own policy towards the increasing home publishing industry.

h) Create the national bibliographic record

The role of the national bibliographic record will be enhanced in the new information environment just as the role of the national collection will be enhanced by including many materials previously excluded. The development of online cataloguing in national libraries should enable national bibliographies, which usually rely on the catalogue of the national library in many countries, to be produced more efficiently and more rapidly than previously. Greater currency and accuracy, linked to comprehensiveness should considerably enhance the goals of the Universal Bibliographic Control (UBC) Programme of IFLA.

National libraries should look at their cataloguing procedures and link them as closely as possible to the production of the national bibolgraphic record. Where national libraries cannot expand their collecting role into the non-print media for any reason, those institutions which are responsible for these types of material should be linked to the production of the national bibliography, preferably by online or microcomputer so that a comprehensive record can be created. The development of co-operative online cataloguing methods is a further reason for seeing the national collection as a decentralised one as all collecting institutions can contribute to the national bibliographic record without any difficulty.

i) Make its collections nationally available

The development of interlending systems in countries is an essential part of

the world and is facilitated by easy access to holdings records, transmission of messages and even transmission of documents in many circumstances using telefacsimile. The environment in which libraries now have to work demands access to a wide range of materials quickly and accurately. The role of national libraries in providing access to collections for all who need them is essential to cultural and economic growth. Such access should not be restricted to those living near the national library or those with sufficient funds and time to consult its material in person. The new environment requires material to move to the user, not vice-versa.

All national libraries should ensure that an efficient and comprehensive interlending network is developed within their country and that their role in this is central to providing literature and also facilitating its provision by others. In many countries the national library does not make its holdings as such available through interlending but does ensure that the holdings of other libraries are available in this way.

j) Provide the focus for an international document supply system

As stated in b) no library can hope, or should hope, to hold all the literature from outside its borders that might one day be required within them. Just as libraries need to rely on each other for less-commonly required materials so this is equally true of nations. The development of international interlending is a significant feature in the current information world. Failure by countries to develop national systems for interlending means that those outside that country cannot have access to its published materials and the opposite is equally true.

Although national libraries may not consider it appropriate, and the new technology makes it unnecessary, for that national library to act as a focal point for international interlending, the national library should ensure that the holdings of major libraries in its country are easily accessed by those outside and that those libraries offer a range of international interlending facilities to ensure worldwide availability of the nation's published literature in whatever form.

k) Act as a national resource for non-printed materials

Few national libraries act as such a resource at present. However, the growth of the importance of material disseminated primarily through non-print such as video, computer software and even sound recordings will make it essential that national libraries are involved in this type of material. Once again it may not be necessary for the national library to collect such materials but there should be a co-ordinating role to ensure that these materials are collected, stored, made available and retained in the same way as other carriers of information.

National libraries and national archives for sound, film or any other medium should work closely together to ensure a comprehensive national coverage of materials in their respective fields. Whilst it may not be politically possible for the functions of such libraries and archives to merge, the role of online catalogues, information banks and other new technological developments should ensure a co-ordinated approach to these problems. Such archives as may remain outside national libraries should be encouraged very strongly to contribute to the national bibliographic record and, where they are recipients under legal deposit legislation, this should be made a requirement if at all possible.

l) Provide a national referral service

As has been stated earlier under e) demands in the new environment are not for documents only but for information. Such demands include information on who can give answers to questions, where can information, products or data be found or who can offer professional advice and consultation on a given topic. These are activities akin to the business directory but often require professional skills and judgements. National libraries, using their role as the hub of the information industry in their country, should be in a superior position to deal with such questions, using both published and unpublished information, databases and inhouse knowledge.

National libraries should consider their role as a national referral centre and build up knowledge and expertise to fulfil this role wherever it is either possible or necessary.

m) Undertake to conserve the national printed heritage

Although it is common to say that the national library has a role in conserving the national printed heritage, this role must be extended to all types of recorded knowledge regardless of the medium onto which it is recorded. The range of skills and expertise for conservation in the paper world is considerable and includes historical bibliographers, chemists, physicists, technicians and artists amongst many others. The conservation of other media such as film, tape and electronic storage facilities is also a crucial element in this exercise, made both easier and more difficult by technological developments as these can save materials but are often more complex to master and implement. In addition the whole question of conserving electronically sorted materials presents challenges of its own.

National libraries should develop comprehensive conservation programmes using such facilities as the advice offered by National Conservation Centres such as those in the Library of Congress and the British Library and also the work of the IFLA Core Programme on preservation and conservation. Co-ordinated efforts should be made with other libraries to ensure the greatest spread of information about conservation, the joint development of programmes to avoid unnecessary duplication of effort and expense and the identification of materials to be conserved. Co-operation should also extend, where appropriate to national archives and national sound and/or film archives.

n) Provide a central co-ordinating point for research in library and information science

The involvement of many national libraries in research is minimal or non-existent. In an era when information technologies, systems and techniques are changing and developing rapidly national libraries need to know what changes are taking place, and what changes are likely to take place in the future. This cannot be achieved without some involvement in research, either directly but carrying it out themselves or at least by funding research and obtaining the results in return. Evolution of information methods must not be allowed to just happen: it needs direction, foresight and perception.

National libraries should develop active research programmes for the wider information environment to ensure that the national information programme

develops in a cohesive way with the maximum use of technologies available. The capabilities of national library staff should be identified, recognised and exploited whenever possible for research purposes. Although the traditional research functions of national libraries into the history, development and content of their collections is valuable for scholarship, there also needs to be involvement in library development per se.

o) Provide a national service for the handicapped

The new information environment has a lot to say for the handicapped person. Trends today are to integrate the handicapped into society, not exclude them. Their needs can often be met by technological innovation such as reading machines for the visually impaired, the use of sound recordings for a range of handicaps and the transfer onto various types of computer of necessary data for manipulation by the handicapped both for daily life, research and academic study. Increasingly, as the differentiation between the handicapped and the non-handicapped become more and more unclear the technologies used by one are of benefit to the other. The personal stereo, for example, has transformed the "reading" life of many visually impaired persons.

In many countries the provision of library services for the handicapped, especially the visually impaired, is the responsibility of a separate organisation from the national library. There seems little logic in this in an environment where format is becoming less important. The picture in some countries of a national library for printed materials, a separate national archive for sound/film and a third national library for the blind seems almost inconceivable in a modern information era. Technology makes many of these distinctions irrelevant and the divisions can become a real impediment to information flow.

National library should, where possible, develop services for those with special needs alongside their other roles to ensure the minimum of discrimination and segregation. They should in any case adopt a co-ordinating role with such organisations within their country to ensure maximum access to materials, catalogues and information in any form appropriate to the reader.

Many of these recommendations will require real will on the part of national libraries to achieve them. Not all will be achievable in any given country for

political, economic or social reasons. Nevertheless national libraries should look at these recommendations carefully to determine which can, and which cannot, be implemented and which are or are not appropriate. National libraries should then draw up a plan of action to achieve the goals which have been laid down. There will, of course, be the temptation to tackle the easy points and discard the more difficult as impossible to achieve. Perhaps those which are most readily discarded should be the ones where action should be taken first.

List of acronyms and abbreviations

ABN	Australian Bibliographic Network
AGLINET	Agricultural Libraries
APINESS	Asia Pacific Information Network for the Social Sciences
ASTINFO	Asia Scientific and Technical Information Network
BL	British Library
BLDSC	British Library Document Supply Centre
CDNL	Conference of Directors of National Libraries
CD-ROM	Compact disk read-only memory
CURL	Consortium of University and Research Libraries (UK)
DBMIST	Direction des Bibliotheques, des Musees et de l'Information Scientifique et Technique (France)
ICYT	Instituto de Informacion y Documentacion en Ceincia y Technologia (Spain)
ILL	Interlibrary loan
INIST	Institut National d'Information Scientifique et Technique (France)
ISBN	International Standard Book Number
ISSN	International Standard Serial Number
JANET	Joint Academic Network (UK)
LASER	London and South East Region (UK)
NACSIS	National Centre for Scientific Information Services (Japan)
NLC	National Library of Canada
NZBN	New Zealand Bibliographic Network
OCLC	Online Computer Library Center (USA)
OSI	Open Systems Interconnect
PC	Personal computer
PICA	Project for Integrated Catalogue Automation (Netherlands)
SABINET	South African Bibliographic & Information Network
SATIS	Scientific & Technical Information Service (New Zealand)
SDI	Selective dissemination of information
SGML	Standard General Markup Language
SILAS	Singapore Integrated Library Automation System
SLSTINET	Sri Lanka Science & Technology Information Network
SRIS	Science Reference and Information Service (UK)
TIB	Technische Informationsbibliothek (Hannover, Germany)
VISCOUNT	Viewdada and Interlibrary Systems Communications Network (UK)